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LECTURES
ON
COMPARATIVE ANATOMY
AND
ANIMAL PHYSIOLOGY,

DELIVERED BY

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LECTURE XX.

ON THE OSTEOLOGY OF CETACEOUS MAMMALIA.

THE sea teems with animals of gigantic bulk, but of inferior organization to those of the land or the air. The lowest animals of each class, and the lowest classes of this great kingdom of nature, are inhabitants of that dense element which encompasses three fourths of the surface of this planet. Relieved from muscular exertion by having their carcass suspended in a liquid medium, and stimulated incessantly on the surface by so dense an element, they remain nearer to their primitive condition. Where all animals are alike surrounded with a fluid,—their vital movements being directed to the elaboration of the simpler elements of structure,—the march of their internal development is arrested. This is not more manifest in the permanent tadpole condition of the fishes, than in the fish-like forms of the marine mammalia, which permanently retain the legless embryo state of our species, when the body consists, as in them, almost alone of the trunk and its caudal prolongation. Their most essential and most important organs, however, are constructed on a plan different from that of the fishes, or any other vertebrated forms we have hitherto considered, especially in all that relates to the production of the species; they are viviparous and mammiferous, like man himself, and form a part of the last and highest class of the animal kingdom.

The massive and durable forms of *mammalia* are supported by a strong and solid frame-work, the bones of which have a composition and texture between the dense and light air-tubes of birds, and the soft and spongy bones of reptiles. The solid walls which bound the periphery of the bones of mammalia, are thicker and stronger considerably than in birds. The cavities of the long bones are smaller, and more subdivided by internal cancelli, than those of birds, but they are larger than any cavities found in the cancellated bones of reptiles. In quadrupeds, those cavities are filled with marrow, which gives a certain degree of toughness and elasticity to the bones; in birds, they are filled with air, to lighten the skeleton. The texture of the bones in quadrupeds is more coarse than in that of birds, and the fibrous structure is more obvious. There is a greater proportion of animal matter in them than in the bones of birds; they are, thus, tougher, less brittle, and by their greater thickness they are stronger. The skeleton of quadrupeds is constructed nearly upon the same general plan throughout all the orders of this class, in the essential parts or central portion of the body. The vertebral column, that series of hollow segments which forms the central pillar of the skeleton of vertebrated animals, is that part the variations of which are most characteristic of the different classes of these animals. We find, therefore, that there are characters of the bodies of the vertebræ, which we can trace through the class of birds, others which we can trace through the reptiles, other characters which distinguish the vertebræ of fishes. So with regard to the vertebral column of mammiferous animals. But as you pass anteriorly or posteriorly from the middle of the vertebral column in quadrupeds, you find modifications more and more ex-

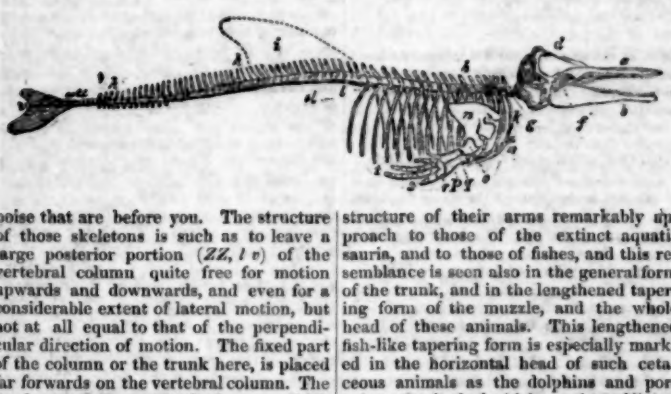
tensive introduced. Thus the coccygeal region and the extremity of the face, the two ends of the vertebral column, present the greatest varieties of form of all this central pillar of the skeleton in mammalia. When you pass on either side of the column to less important parts of the skeleton, to the extremities, and particularly to the distal parts of those extremities, you see still greater modifications of form. Thus we see in the same class of animals, in the cetacea, no trace of legs, but only arms developed, while the legs of the kangaroo are many times the size of their diminutive arms. The hand, the extremity of the anterior member, we see comparatively small and diminutive in the heavy elephant; short and diminutive, though strong, in many of the burrowing quadrupeds; and we see it in the bat of great length and size, to assist that quadruped in pursuit of its prey through the air.

Examining the class *mammalia* in this manner, we perceive that the orders of quadrupeds may be, and really are, founded upon trivial differences of the *outward* parts of the body; yet the characters of this class, and of all the classes of vertebrated animals, are founded on important differences of *internal* structure. The form thus varying in peripheral or in trivial parts, we are prepared to find in the fin of a porpoise or a grampus, the ordinary bones of the human hand, slightly modified in form; and we are prepared also to find them variously modified in the wing of the bat, and in the foot of the mammalia,—even in the solidungulous feet of the zebra, of the quagga, and of similar pachyderma.

Proceeding to the individual forms which characterise the orders of this most diversified, most elevated, and most interesting of all the classes of vertebrated animals, we arrive at that fish-like form of the mammalia, which so peculiarly distinguishes the *cetaceous animals*, the most imperfect skeleton of all the mammiferous animals, or the most defective in many important parts.

The general outline of the skeleton of cetaceous animals, you perceive from the specimens of the skeleton (*ZZ*) of the porpoise that are before you. The structure of those skeletons is such as to leave a large posterior portion (*ZZ, l v*) of the vertebral column quite free for motion upwards and downwards, and even for a considerable extent of lateral motion, but not at all equal to that of the perpendicular direction of motion. The fixed part of the column or the trunk here, is placed far forwards on the vertebral column. The fixed part of the vertebral column to which the ribs are attached, from which the important organs of individual nutrition are suspended—all this is placed far forwards, as in fishes, and for the same reason. From the great mobility required, and the constant motions through life, from a very early period, of the vertebral column, and the total want of posterior extremities and of a fixed pelvis, there can be no sacrum in a cetaceous animal. Cetaceous animals thus organised to swim constantly through the sea, and being incapable of coming upon shore to rear their young in caverns, like seals and walruses, which are higher animals, we find that the form and structure of their arms remarkably approach to those of the extinct aquatic sauria, and to those of fishes, and this resemblance is seen also in the general form of the trunk, and in the lengthened tapering form of the muzzle, and the whole head of these animals. This lengthened fish-like tapering form is especially marked in the horizontal head of such cetaceous animals as the dolphins and porpoises, the food of which consists of living prey, which they find swimming before them in the water. But there are some cetaceous animals, as the dugong and the lamantine, that do not feed upon animal substances, but upon marine plants; those have the face bent down, and not projecting straight forwards, as you see in the muzzle of the grampus, or of the porpoise, or of the dolphin. That bent form of the intermaxillary bones, which is so remarkable in the dugong and in the lamantine, is the best position for taking the marine plants from the rocks below the bodies of those cetaceous animals when swimming, and they have the neck long and flexible

ZZ

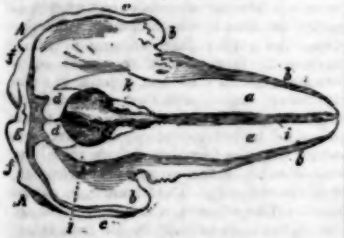


to enable them to bend down the whole head. But as to the rapacious cetaceous animals, the piscivorous species that are pursuing fishes upon the same horizontal plane with their own bodies, it is better for them to have this long prehensile instrument, the lengthened head, quite in a line with the direction in which they are swimming. The herbivorous cetaceous animals have it bent down to their proper food beneath them.

As those animals breathe atmospheric air like other mammalia, and not by means of gills, like the fishes which they so much resemble, and as the head of those animals is so large and so much lengthened forwards, they require to have the nostrils elevated, and a short and strong neck to support the head. The shortness of the neck, however, and the magnitude of the head, render it almost impossible for them every time they wish to breathe to raise it to the surface of the water, and gape and bend their short neck backwards to a right angle with the rest of the column; so that we observe the nostrils necessarily raised to the vertex of the head; these are the blow-holes or blowing holes of the cetacea. The extension of the intermaxillary bones (*Fig. aa*), approximated and parallel upwards from the point of the muzzle to nearly in contact with the frontal bone, has raised the nostrils, the exterior openings of the nostrils, thus high upon the head; and frequently also the cartilages of the nose are directed upwards, with their usual muscles, which completely reach beyond the level of the highest part of the head, so that gliding along the ocean immediately beneath the surface of water, they can breathe perfectly well with nothing in contact with the atmosphere but these elevated and lengthened nostrils.

The head (*Fig. 75*) of those piscivorous cetaceous animals, those that feed upon

Fig. 75.



fishes, is chiefly lengthened by the great development of the superior jaw-bones (*Fig. 75, bbbb*), and of the intermaxillary bones (*Fig. 75, aa*) and the lower-jaw (*ZZ, b*). The nasal bones (*Fig. 75, d d*) are raised high upon the forehead, and are very small; and the vomer (*Fig. 75, k*) is of great magnitude and length, extending forwards, and rising between the separated intermaxillaries. The teeth which are implanted in those straight jaws resemble those of most reptiles, amphibia, and fishes; they are not organs for mastication; they are sharp, conical, curved, prehensile organs; they do not meet point to point, but in an alternate or serrated manner, the one passing between the others. This is the most common character of the teeth, which we observe in the large as in the small species, from the huge cachalots like whales, to the small diminutive porpoise. The general form of the teeth is that of a tapering curved cone which long remains hollow at the base for continued growth. In the cachalot the teeth are placed only in the lower jaw, and that jaw is remarkably long and narrow, and occupies only the middle part of the upper jaw, not at all approaching to the margins of the upper jaw nor near them. It is the reverse in the whales, where the lower jaws stretch laterally far beyond the upper jaws which support the horny lamina or whale-bone. In the lower jaw of the common whale we observe in the adult state no teeth whatever, but only a deep narrow groove running along the upper margin of the lower jaw upon each side of the head; that is the remnant of the original alveoli. In the young state of that animal there are actually teeth in the lower jaw, though they have never been seen in the adult. That curious discovery was made by Geoffroy Saint-Hilaire. The teeth, from the wideness of the alveoli, and the softness of the bones and the uses of these teeth, are remarkably deciduous in the cetaceous animals, and they have not the extensive power of reproducing them possessed by the lower classes. The whole texture of their bones indeed approaches in its coarseness to that of reptiles, and the imperfect development which marks all the systems of the cetacea is nowhere more obvious than in the structure of the head, and in the coarse fibrous texture of their bones. Like reptiles, their long bones have generally a spongy cancellated texture throughout, filled with a thin serous marrow, and have not long tubular cavities. The great development of the face, compared with the small development of the cranial cavity, is a striking mark of the inferior organization of the cetacea. Their head consists, you will observe by this skull of the grampus (*Figs. 75, 76*), almost entirely in the bones of the face. The intermaxillary bones extend nearly

to the vertex of the head. The superior maxillary bones (*Fig.* 75, *bb*) also extend upon each side nearly to the highest ridge traversing the crown of the head. The frontal bone (*Fig.* 75, *cc*) is compressed between the occipital bone and the superior jaw-bones into a narrow ridge of bone crossing the vertex and extending downwards on each side to form the upper margin of the orbit. From the anterior extremity of the frontal bone there extends backwards to the zygomatic process of the temporal bone, a thin curved delicate bone which bounds the orbit below; that is the jugal or malar bone (*Fig.* 75, *d d*). It is present, you observe, in these skulls of the porpoises, though it is most frequently lost in preparing the skeletons of cetacea. That slender bone corresponds again in its imperfect development with the small chain of bones which we saw forming the zygomatic bone of fishes. The parietal bones scarcely make their appearance in the cetacea upon the crown of the head, but occupy the lateral parts, placed at a distance from each other, having intervening between them the large, flat, occipital bone (*Fig.* 75, *g*), and the narrow frontal bone, the frontal bone touching the occipital. The occipital bone rises, thus, nearly perpendicular from the occipital foramen. The occipital foramen is nearly in a line with the rest of the vertebral column, a remarkable position of this aperture for one of the mammalia. Indeed, you will often find that it actually inclines at its upper margin a little forwards, as if it were gaining upon the crown of the head. Thus the cranial cavity is remarkably small and compressed from before backwards in the grampus, and in most cetacea, while the whole face is thus enormously extended.

The temporal bone (*Fig.* 76, *n*) has its squamous part and its zygomatic process largely developed and generally detached

Fig. 76.

altogether from the petrous and tympanic portions. Those two lower elements of the temporal bone are almost always anchylosed together in the adult, but not to the squamous portion of the bone. The palatine bones (*Fig.* 76, *m m*) occupy a very small space at the back part of the roof of the mouth. In place of one infra-orbitary foramen, there are generally found in the upper maxillary bone of the cetacea a series of smaller foramina. In the large whales, you observe a series, extending forwards along the upper surface of the superior jaw-bone, of several small foramina, in place of one great infra-orbitary foramen.

The neck is thus necessarily short from the great size of this lengthened head. The ethmoid bone presents no cribriform plate; and we observe in this porpoise, that the part corresponding with the cribriform plate of the ethmoid bone is a thick spongy bone, without any perforations for olfactory nerves. The structure of the blow-hole is admirably adapted for breathing while the head is in a horizontal position near the surface of the water, and it is admirably adapted to throw, with great violence, water to a distance; but from this very structure, and the powerful stimulus of the sea-water to which it is thus constantly exposed, it is ill adapted for the distribution of a delicate nerve of sense; and careful dissection shows that often no trace of a first pair of nerves can be detected reaching from the brain to these nostrils. In most of the cetacea which I have examined, including the whales, the cachalots, the grampuses, the dolphins, and many others, there is an increased development of the right side of the face and head, by which the nostrils are sensibly twisted to the left side.

In the mammiferous animals we observe that there are only seven cervical vertebræ, and it is remarkable to observe the constancy of this number throughout nearly the whole class. But you must consider that that is very nearly the most central part of the vertebral column. It is near that part of the vertebral column where ossification begins—the central part of the skeleton,—and the most important, from the part of the nervous system it encloses. This part, therefore, together with the dorsal vertebræ, should, *a priori*, be looked upon as the most constant and uniform part of the skeleton. In the *lamantine*, however, there are but six cervical vertebræ, and in the dugong there are seven. In the porpoise, sometimes I have found but five thin laminæ, all anchylosed together, as the only trace of the whole cervical vertebræ, and even the intervertebral foramina coalesce and unite so as to become fewer. This is also seen in some whales. There are sometimes only six perceptible, and those, you ob-

serve, are very much compressed, and frequently those vertebræ are entirely anchylosed (*Fig. 77*). In the skeleton of the

Fig. 77.

grampus before us, where they are comparatively large, four of those cervical vertebræ are anchylosed together, and three of them are separate and slightly moveable. In the herbivorous cetaceous animals, the region of the neck is more lengthened and moveable, and the head of those animals is less lengthened outwards in a straight line than those of the blowing cetacea.

The vertebræ of the cetaceous animals retain some of their elements for a long time detached. The bodies of the vertebræ terminate by flat surfaces. We observe the lower part of the coccygeal vertebræ (*ZZ, h*) to have spinous processes developed as well as above. The bodies of most of the vertebræ have their two terminal laminæ detached through life, as you see in these of the grampus. The body of the vertebra is here composed, therefore, of three pieces, placed in a line, —the central portion, and the two terminal plates of the body of the bone. These terminal plates of the bodies of the vertebræ of large cetaceous animals, washed ashore upon our coasts, are sometimes picked up detached, and they have been described as shells. I hold in my hand one of these thin terminal plates, belonging to a whale; it has been figured in the *Encycl. Methodique* by Bruguiere, and described as a rare species of bivalve shell—one of the valves of these bivalved shells called *acardo*.

The spinous processes and the transverse processes are necessarily large in a considerable part of the vertebral column in those cetaceous animals, from the extent and the vigour of motion required in the posterior part of the tail. The tail (*ZZ, u v*) is their organ of progressive motion; it is supported by cylindrical vertebræ, almost without processes, to admit of the freest motion, and it is directed horizontally; that of a fish is directed perpendicularly. There are no adventitious bones to support the cartilaginous tail, any more than in the dorsal fin. It is necessarily directed horizontally in the cetacea, because they breathe atmospheric air, to arrive at which they must ascend in the water, and they must descend in pursuit of their prey or for safety. For those motions, the horizontal direction of the tail is the best adapted. In fishes, the perpendicular direction is the best, because they never require to ascend in the water to breathe, nor do they descend for their prey, but their motions are mostly in a horizontal plane; their ascending and descending motions are effected by dilating and compressing their air bag, and not by the motions of the tail.

We observe fin-like expansions on the median plane in many of the species, as in the dolphins (*ZZ, i*) somewhat analogous in appearance to the dorsal fins of fishes. Lacepede states, that in some of these animals rays have been found like those supporting the fins of fishes, and he has figured them in the Encyclopedie Methodique. No one else has seen them. It is not an analogy to the fin of the cold-blooded oviparous fishes we are to look for here; we are not to look in this class of animals for analogies of that remote kind. That would be seeking too far for nature's analogies, although one might naturally enough imagine that it would be a convenience to give this dorsal appendix of the cetacea all the rays and interspinous bones which we saw in this region of fishes, when these dorsal cartilaginous appendices are so much shaped like fins. That, however, is not nature's plan of structure for the dorsal region of mammalia. The typical form and the parallel disposition of the four superior elements of the dorsal vertebræ for enclosing the spinal marrow, she is careful to preserve, however she may vary the outward shape of the body. The typical character of the structure of a part is ever preserved, amidst the greatest differences of the outward form.

Many mammiferous animals, besides the cetacea, have a cartilaginous hunch like this upon the back. Do we not see it in the dromedary? Do we not see it in the camels of Africa, and the zebus of India? And these are mammalia belonging to the very next order to the cetaceous animals.

The ribs in the cetacea are articulated in a different manner at the anterior and posterior part of the chest. At the anterior part they are articulated in a fixed manner by the head shooting inwards to the body of the vertebræ, and by its tubercle being fixed to the transverse processes; this is re-

quired to give a solid attachment to the powerful muscles of the arms; but in the posterior part of the trunk we see the reptile-like or fish-like condition of the ribs; they shoot out from the very termination of the transverse processes, showing by this attachment a near approach to the origin of those bones, the primitive condition of all ribs. They are developed from transverse processes, or from the laminæ of the inferior vertebral canal for the vascular system. Greater mobility is thus given, and greater flexibility in every direction to that posterior region of the trunk. The sternum is, for the same reason, very small in cetaceous animals, for you will observe that it is chiefly the anterior part of the trunk that is fixed, and the posterior part has its ribs quite moveable upon its transverse processes. The sterno-costal cartilages are, for the most part partially ossified in cetaceous animals. We find them ossified in many reptiles; we find them ossified in birds; we find them ossified in the monotrema. Among the other mammiferous animals, some of the edentulous animals also have those sternal cartilages ossified. In this character they present an affinity rather with the lower than the higher forms of vertebrated animals, as it is more frequently a normal structure in the lower tribes.

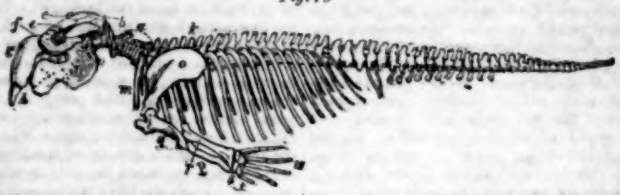
Although the cetaceous animals are destitute of all external traces of posterior extremities, they possess the rudiments of pelvic bones extending on each side of the anus, generally downwards and inwards, and sometimes forwards and backwards. Those pelvic bones are of a lengthened and rib-like form; they are generally called the pubic bones (*Fig.* 79) of the cetacea, as they meet in the fore part. As they are bones which form an arch extending downwards from near the transverse processes of the vertebra to the median line, we might be at liberty to call them either iliac bones or pubic bones, in so far as their form is concerned. We have seen already two similar iliac bones in the amphibious animals. You will remember that we saw two long cylindrical bones extending downwards from each side of the sacrum in the frog (*S**, *e e*) which met on the median plane, and united by the two smaller interposed pelvic bones. Those were the two rib-like iliac bones in the amphibia. So these bones in the cetacea may be considered as analogous to those more developed bones in the pelvis—the two iliac bones, which would come next to the transverse processes in the development of the vertebræ, and which may be supposed originally to have given birth to the pelvic arch, as well as to all the other osseous arches along the sides of the column.

In this imperfect condition of the pelvis in the posterior part of the skeleton in the cetacea, we perceive an analogy between them and several of the serpents which have only the rudiments internally of a pelvis, without presenting externally any trace of legs, and in the detached condition of this pelvis it has a striking analogy to the loose and shifting pelvic bones we have seen in fishes. The arms of these cetacea are covered externally with muscles, tendinous expansions, adipose substance, and with a naked, smooth, thick, elastic skin, so that we scarcely perceive in any of these piscivorous species any trace of fingers externally. The scapula (*ZZ*, *n*) is a very large, expanded, flat bone for the attachment of the principal posterior muscles of the humerus. In the fin-like arm of the porpoises before you, you can perceive, notwithstanding that the humerus (*ZZ*, *o*) is distinctly and strongly developed, that it commences with a round head, which plays by its extensive articular surface upon the shallow glenoid cavity of the scapula. You perceive an elevated tubercle on the humerus for the attachment of the strong pectoral muscles. From the head of the bone it becomes gradually compressed, and at its distal extremity it presents a very compressed form, and a semicircular termination, as you observe more distinctly in the large arm of the whale (*Fig.* 78, *a*). That compressed form pervades all the rest of the arm and hand from the lower half of the humerus. It pervades all the succeeding bones of the arm, the forearm, the wrist, and the hand especially of the whales. The *radius* and the *ulna* (*Fig.* 78, *b c*) are here distinctly developed, but in such a manner united to each other, to the humerus, and to the bones of the carpus, that they admit of no pronation and supination. The radius (*Fig.* 78, *b*) is here very largely developed, short, broad, and slightly arched: the ulna (*Fig.* 78, *c*) is a very small narrow bone, with a projecting olecranon. Succeeding the radius and the ulna, you observe that the small detached bones of the carpus (*Fig.* 78, *d*) present a circular form loosely held together by a connecting cartilaginous substance. They do not meet and play upon each other, so as to produce articular surfaces; and they have not that solid connexion and motion on each other by articular surfaces, which we see in the amphibious aquatic mammalia, or the walrus and the seal, and even in

Fig. 78

the herbivorous cetacea. The metacarpal bones, and the phalanges of the fingers in these hands of the porpoise, present the same character of circular detached bones. They are numerous, as in the hands of a fish; and they taper down to the extremities of the fingers, where they are exceedingly small. This character, in these most aquatic species of cetacea, is interesting to observe in connexion with the condition which we have already seen in the phalanges of the pectoral fins or arms in fishes. We observed that the phalanges of the fingers in the fishes were numerous in each individual ray, which is analogous to one of the fingers in these higher animals. That character is here very generally repeated in the fish-like arms of these cetaceous animals. The imperfect development of those phalanges of the hand which you observe in the cetaceous animals, and their meeting together by convex surfaces, indicate the imperfect ossification, the want of motion, and the want of strength in that hand. Had they admitted of more extensive motion, been further developed, and met each other, there would necessarily have been produced articular surfaces, which would have played freely upon each other. This applies to that division of the cetaceous animals which I have been hitherto chiefly examining—the predaceous or piscivorous species; but it does not apply to the cetaceous animals which feed upon vegetable substances—the phytophagous or herbivorous species, as the *dugong*, and *halicore indicus* (*Fig.* 79); for in these

Fig. 79



we find, not only that the hand, but many other parts of the skeleton are more perfect, more highly developed than in the first group of cetaceous animals we have been considering.

In the herbivorous cetacea, as the dugong and the lamantine, we observe remarkable modifications in the skull in consequence of this great difference in the kind of food. For in regard to those animals, the food is not suspended in the water upon the same horizontal plane, as it was in the first group, where, consequently, we observe the head to be lengthened in a straight line—the best adapted, like the head of fishes, for seizing the prey that is swimming before them in the water. The herbivorous animals feeding upon the plants that waive to and fro in the waters attached to the rocks below, have the muzzle bent downwards; this we see in the remarkable bent face of the lamantine, where the lengthened intermaxillary bones are arched downwards at their extremities to the rocks where the food lies. This curvature is greatest, however, in the dugong of all the known herbivorous cetacea. This curvature, which we observe in this skull, is dependent on the great development and the angular form of the two intermaxillary bones (*Fig.* 79, *g*) which compose the whole of the fore part of the face, extending upwards along each side of the nostrils. These two intermaxillary bones contain two long tusks (*Fig.* 79, *h*) which project only a short distance from their long alveoli; consequently those tusks, placed in the intermaxillary bones, are analogous in their position and their nature to the curved tusks of the elephant; but they are not analogous to the tusks of the walrus, they are in a very different bone; in the walrus they are in the upper jaw-bone; there they are, therefore, true canine teeth; the tusks of the dugong are incisor teeth.

In the back part of the mouth we observe in the superior maxillary bone, and in the back part of the inferior maxillary bone, teeth of a very different character from those of the cetacea we have yet been considering, where we found all the teeth to be like those of crocodiles, serpents, and fishes, all of the same form, pointed, recurved, conical teeth, which did not meet but passed beside each other when the jaws were closed. But in the herbivorous cetaceous animals we see very large molar teeth, with flat and broad crowns, placed so as to meet each other in the opposite jaws when the mouth is closed. This flat form of the teeth, and their opposition to each other, is the best arrangement for bruising the thick succulent stems of fuci and all other soft pulpy aquatic plants. The great strength of the jaws which we observe in these skeletons (*Fig.* 79), has also a relation to this kind of firm vegetable

food, upon which these herbivorous cetacea subsist, and the depth of the molar teeth required for its mastication.

We observe an imperfect development of the skulls of these phytophagous cetacea, in the remarkably loose connexion of all the bones of the head. Even the elements of some of the bones which in higher quadrupeds are united, are in these herbivorous cetacea left detached. You observe in the skull before you of the dugong, that the superior median portion of the occipital bone is not perfectly anchylosed to the two condyloid portions of the same bone. The two condyloid portions, however, have almost completely anchylosed to the inferior median element of that bone—the basilar portion of the occipital bone. The temporal bone has its petrous portion generally detached from the squamous through life, as in the other cetacea. We observe very loose and imperfect sutures connecting the temporal with the parietal bone (*Fig. 79, e*); so that in this macerated condition of the skull they are all moveable upon each other. The frontal bone is divided into two by a suture—a continuation of the saggital suture. The zygomatic bone (*Fig. 79, f*) for the powerful masseter muscles of the herbivorous cetacea is remarkable for its great development, when contrasted with the very slender bone occupying that region in the skull of the blowing or predaceous cetacea, where it is only a slender spiculum of bone bounding the orbit below. The jugal bone or the zygomatic bone (*Fig. 79, f*) is connected with the malar process of the frontal bone (*Fig. 79, e*) by a small bone, which is here very loose and moveable in the macerated skull—the lachrymal bone. Small as that bone is in the herbivorous cetacea, we find that the constancy of the plan upon which the crania of these animals are constructed still renders it a constant though small element in all forms of the skulls of the mammalia.

The arms of these herbivorous cetaceous animals are much more perfectly developed in every part than the arms of the blowing cetacea, indeed these animals can employ them as the seals and the walruses to clamber upon rocks, and to come from the abyss to enjoy the sun, to manipulate their offspring, or to rear their young among rocks. The great development of the arms in the herbivorous cetaceous animals appears thus to be curiously connected with a character which they exhibit in their mammary organs. The piscivorous cetacea have theirs placed very near to the anus; the herbivorous cetaceous animals have their mammary organs placed, however, upon the chest, and two in number, as they generally are when pectoral. By the great development of the arms animals can better manipulate their young, and that is, therefore, the most convenient region in such animals to have the nipples, upon the chest; thus you see it in the quadrumanous and in the cheiropterous animals. The enlargement of those pectoral mammæ in those herbivorous cetaceous animals when suckling their young, together with the round truncated form of the head, and the great development of the arms, appears to have led mariners to suppose, at a distance, while they were observed suckling their young at the turgid breasts, and seeing they terminated behind like the inferior scaly inhabitants of the deep in a long tapering tail, that appears to have induced mariners to fancy the existence of a mermaid, those animals combining so much the character in the forepart of a human being, and behind so much the character of a fish. In one of these herbivorous cetaceous animals, the lamantine, the hands are so perfectly developed, that the terminal phalanges of the fingers are provided with claws which indicate the prehensile uses to which they are applied in the living habits of the animal; indeed it is from that character that the genus *manatus* or lamantine has received its name.

We have thus seen in the gigantic bones of the grampus, and in the bones of these larger cetacea, the coarse fibrous structure which we witnessed in the reptiles and most of the cold-blooded vertebrata, and which we find in the corresponding embryo condition of the human skeleton, where we observe also the same want of cavities in the imperfectly developed long bones of the extremities. Indeed in the imperfect or simple condition of the whole skeleton in these lowest of the mammalia, we see a beautiful adaptation to the motions required for their aquatic life, and a perfect emblem of the primitive condition of the skeleton in our own species when yet surrounded with the amniotic fluid, and before legs have begun to bud from the sides of the prolonged tapering trunk of the embryo body.*

* A new order of notation has been commenced with the engravings in this lecture. Dating from the first engraving in the course, the engraving at page 843 is entitled *Figure* 75, and in the remaining lectures of the course the whole of the engravings will be referred by numbers instead of capital letters.

CLINICAL LECTURE,

CONTAINING REMARKS ON THE STRUCTURE OF

SUBCUTANEOUS NÆVI;

On the Effect of diminishing the Supply of Blood to such Tumours; and on the

LIGATURE OF THE EXTERNAL CAROTID ARTERY.

Delivered at the Jervis-Street Hospital, Dublin.

By WILLIAM WALLACE, M.D., M.R.I.A., &c. &c.,

One of the Surgeons to the Hospital; and Surgeon to the Dublin Infirmary for the Treatment of Diseases of the Skin, including Venereal Diseases.

GENTLEMEN,—Many of you must remember a patient of the name of Dunn, on whose external carotid artery I applied a ligature, on account of a large vascular tumour of the face. A young woman, whose case is remarkably similar, has been sent from a distant county to town for my assistance, upon whom also it is my intention to operate. She will I expect come, in a few days, into the hospital for this purpose; and as I wish to prepare your minds for the operation which I intend to perform on her, we shall, if you please, occupy this morning's lecture in taking a review of Dunn's case.

Dunn was, when she came under my care, about thirteen years of age, and, as you may judge (here Dr. WALLACE exhibited her portrait), she would have been a very well-looking girl, had her face not been disfigured by this tumour, which was fully the size of a goose's egg, and occupied the greater portion of the right cheek, and the corresponding sides of the upper and under lip.

This tumour, which was entirely devoid of pulsation, could be greatly diminished by pressure. It could, in fact, like a sponge, as it were, be completely emptied; but as soon as the pressure was removed, it regained its former dimensions. It was increased in size by whatever increased the determination of blood to the head, or retarded its return to the heart. Hence it was enlarged by bodily exertion, by mental excitement, or by stooping; it was observed to be larger when the girl was asleep than when awake, yet smaller in the morning after sleep than in the evening. Its size was diminished during mastication, and increased on exposure to an unusual degree of either heat or cold.

The skin which covered the whole external surface of the tumour, was so very thin, that it appeared ready to give way whenever the tumour was, from any cause, distended or increased in size; and while the posterior portion of this covering exhibited very much the same appearance as is presented by the form of cutaneous nævus denominated *araneus*, the remainder was livid or purple-coloured, as if affected by ecchymosis. The superficial veins of the right side of the neck were much larger than those of the opposite side, but there was no increased action of the arteries of the right side.

The entire inner surface of the tumour, or where it corresponded with the cavity of the mouth, was of the colour of dark, venous blood, and the mucous membrane which covered it was extremely thin and transparent. The tumour, when viewed through this membrane, seemed to be composed of a convoluted mass of veins of various magnitude; it extended from the lips to the coronoid process of the lower jaw, involving the whole internal surface of the cheeks, with the gums of the superior and inferior maxilla; and the capillary vessels of the mucous membrane of the mouth were in a varicose state for some distance beyond the circumference of the tumour.

The pressure of the tumour on the alveolary arches and on the teeth had caused a considerable deviation in the natural direction of those parts; the molares and cuspidati were forced inwards, and the incisores forwards beyond their natural outline.

The tumour projected much more when the mouth was closed than when open; and when she retained her teeth a little separated, she had great power of increasing or diminishing the external dimensions of the swelling, according as by suction she drew it into the mouth, or by inflation projected it from it.

She experienced at all times during mastication considerable difficulty, when the jaws were approximated, in preventing the tumour from passing between the dental arches; and when her attention was not directed to the prevention of this accident, it frequently occurred, although, as I have already said, the size of the tumour always decreased during the act of mastication.

The germ of this tumour was congenital, yet it was only within a year or eighteen months that its rapidly increasing size had attracted the notice of the girl and her parents. In the course of this period she had laboured under the measles, and it was observed that at that time the tumour was remarkably large and tense, and that its dimensions had subsequently increased very much.

The great deformity which the disease produced, and the teazing inconvenience which it caused during mastication, to say nothing of the serious consequences which might fairly be expected to ensue at no very distant period from the bursting of the tumour (the dimensions of which were now rapidly increasing), imperiously demanded that something should be done for the relief or removal of the disease.

Pressure, with and without cold astringent applications, was tried; but, as might *a priori* be expected, could not be borne, and the girl and her parents having been put in possession of the degree of deformity which would necessarily result from excision, or from the removal of the tumour by ligature, would not consent to either mode of operation; nor indeed would I myself have acceded to it, if they had consented; for if even the whole cheek had been removed, as the morbid structure occupied the gums and surrounding parts, it could not have been entirely extirpated, and the operation would, in all probability, have been unsuccessful, or perhaps fatal, from the hemorrhage which the section of the diseased vessels would cause.

Under these circumstances I proposed that a ligature should be applied to the right external carotid, with the view of diminishing the supply of blood to the tumour, and thereby causing its decreased, or at least preventing its further growth. This proposal was seconded by some professional friends who saw the case, while it was argued by the majority, that as the tumour was evidently connected with veins, and devoid of all throbbing and pulsation, and as there was no increased action of the surrounding arteries, it would not be influenced by a ligature applied to its arterial trunks. It was also argued that the very free anastomosis among all the arteries of the face, would prevent any diminution in the supply of blood to the tumour, from the ligature of those of one side. These objections did not, however, seem to me paramount, when I reflected on the recorded cases of vascular tumours of *different kinds* seated about the head, which occurred in the practice of Dupuytren, Travers, Dalrymple, and others, but particularly in that of Wardrop, and which had been treated by the ligature of their supplying arteries. In short, after a mature consideration of all circumstances, I have determined to apply a ligature to the external carotid corresponding with the tumour, and, if necessary afterwards to the same vessel on the opposite side.

The girl having been submitted for a few days to an antiphlogistic regimen, I performed the operation on the 3rd of October, in presence of Mr. Crampton, Mr. Stringer, Dr. Charles Orpen, Mr. Hutton, Mr. Harrison, Mr. Benson, Mr. Houston, and a great concourse of students; the case having excited very general interest.

The patient was placed in a recumbent posture on this table, with a pillow under her shoulders, her head being thrown back, so that the vertex was the most depending part, and her face directed to her left shoulder. By these arrangements, the space for operation was increased, and the parts to be operated on were rendered more tense. To prevent the possibility of any difficulty in the course of the operation from venous hemorrhage, which was much to be feared, in consequence of the dilated appearance of the superficial veins of the neck, I resolved to tie all such vessels as would necessarily be cut, as soon as they appeared under the scalpel; and reflecting on the situation and relations of the root of the external carotid, I took the anterior edge of the sterno-cleido mastoid muscle, and the corner of the os hyoides, as my guides in cutting down upon the artery.

I commenced the operation by making an incision about two inches in length through the common integuments, along the anterior edge of the sterno-cleido mastoid muscle, and in such a situation that it was bisected by the corner of the os hyoides. The platisma myoides and fascia of the neck were then cautiously divided. In doing this, two veins were met, and immediately secured by small ligatures. I was now able to feel the external carotid pulsating very distinctly in the bottom of the wound, close to the extremity of the os hyoides, but still lying deep, and covered by two lymphatic glands, which seemed to be a little enlarged, and intimately adherent to the coats of the artery. A vein, the size of a crow's quill, lay between the glands, and traversed the artery in a deep and narrow space. I now felt somewhat at a loss how to act; for while it seemed necessary to remove one or both of the glands to make room for the passage of the ligature round the artery close to its origin, it was at the same time evident that their removal might be attended with unpleasant, if not with serious, consequences, because a number of small vessels would thereby necessarily be divided, and the hemorrhage thus caused obscure the future steps of the operation; and because, from the close adherence of the glands to the tunics of the artery, so much of this vessel would be denuded as might cause a slough of the root of some of its collateral branches, and thus lead to se-

condary hemorrhage. I therefore determined, not only to avoid removing these glands, but to disturb them as little as possible; and by carefully scraping with the end of a director, I succeeded in laying bare about one line's breadth of the artery, just where it was situated between the glands, and crossed by the vein to which I have alluded; I now passed with some difficulty round the artery in this situation an aneurysm needle, armed with a ligature consisting of two cords of silk. I at first attempted to conduct the needle from without inwards, but found it more convenient to pass it from within outwards. The ligature having been tightened on the artery (and in doing so the division of its tunics was distinctly felt), one end was cut short and the other brought out of the wound opposite to the part at which it was applied to the artery. The ligatures which had been applied to the small veins were then removed, and the lips of the wound, joined by two interrupted sutures, were covered with strips of adhesive plaster. There was no roller applied to the neck.

There was not a dessert-spoonful of blood lost during the operation, every step of it was therefore most distinctly and satisfactorily observed. The ninth nerve was seen above the portion of the artery to which the ligature was applied, and the descendens noni on the outer side. Some very minute fibres of nerves were necessarily divided. None of the branches of the external carotid were made visible, so small was the portion of this artery denuded.

As soon as the ligature was tightened on the artery, all pulsation ceased in the ascending branches of the right external carotid; and the tumour immediately shrunk so much, that it almost totally disappeared, leaving the skin, which covered it, hanging in wrinkles. But in a few minutes it resumed nearly its former dimensions, though it felt much less full or firm. The operation was scarcely finished, when the patient complained of great oppression of her breathing, and of a sense of tightness in her neck and chest. These symptoms, however, did not increase after she was laid in bed.

I will now read you the reports made daily after the operation.

Oct. 3rd, nine o'clock p.m. Has had a good deal of sleep since the operation; has been twice sick, and vomited each time; pulse 93. The oppression of her breathing, and the sense of tightness or constriction in her neck, are not so troublesome. There is no pulsation whatever to be felt in the ascending branches of the right external carotid. The corresponding side of the face feels slightly colder than the opposite one. The tumour is almost as large as before the operation, but is much more soft, and she says it does not feel nearly so heavy. Appears much inclined to sleep.

Oct. 4th, eight o'clock a.m. The temperature of the right side of the face feels much lower than that of the left. The right cheek is less red, and the right eye less bright, than the same parts of the opposite side. Tongue whitish, yet there is no thirst; pulse 118; has less oppression of breathing or sense of tightness in the neck. She has had a return of the vomiting, and discharged a quantity of greenish mucus from her stomach. Has had two copious and spontaneous evacuations from her bowels. She slept much in the course of the night.

Nine o'clock p.m. Her countenance is flushed, and the temperature of the right side of the face is increased. She complains of much tightness in her neck, and of oppression in her breathing. The tumour is rather fuller than it was. There is at present, and there has been all this day, a great disposition to sleep; and when awake she sighs very frequently; pulse 108, small, round, and quick; it is somewhat irregular, beating for a time more frequently and then more slowly. There is also an occasional remission. Tongue white, but no thirst. No discharge from her bowels in the course of the day. ℞. *Ext. Colocynth. Comp.* gr. vi; *Sub. Mur. Hyd.* gr. iij; ft. pilulæ duæ quam primum sumendæ, et post horas quatuor habeat enema purgans, si opis fuerit.

5th, eight o'clock a.m. During the night she was much troubled by headach, sickness, and vomiting. Her bowels have been freely purged; her stomach is now quiet, and her head free from pain. The temperature of the right cheek is not so high as it was last night. She still complains of some oppression of her breathing, and of a sense of tightness in her neck. Pulse 104 and regular; tongue not whiter; no thirst.

Nine o'clock p.m. The drowsiness has not been so great this day as yesterday; nor has she had any sickness since the morning; but there has been some headach. The temperature of the right side of the face is still lower than that of the left side. The right sides of the lips are hotter than the corresponding cheek. She has no thirst, and some appetite for solids; tongue cleaning; pulse 109. One copious discharge from her bowels since the last report. The sense of tightness in her neck, and of oppression in her breathing, are less troublesome.

Eight o'clock a.m. Had severe headach for about an hour yesterday evening; yet afterwards she had a very good night. Pulse 94; tongue cleaning; appetite for

solids increased. There is much less drowsiness; but there remains a sense of tightness in her neck, and she complains, for the first time, of soreness of the wound. The temperature of the right cheek is still lower than that of the left. Pulsation in the vessels of the right side of the head.

The wound was opened, and its edges were found everywhere united except at the lower end, and round the ligatures. There was discharged about a teaspoonful of a viscid whey-coloured matter; some redness or erythema surrounded the wound.

Ten o'clock p.m. She is now asleep, and the tumour appears much larger than when she is awake. She has not been nearly so drowsy to-day as yesterday. The temperature of the right side of the face (the lips excepted) remains lower than that of the left side. An obscure pulsation can be felt in front of the cartilaginous tube of the right ear, apparently caused by the temporal artery.

October 7, eight o'clock a. m. She has spent a tranquil night; there is no perceptible difference between the temperature of the right and left cheek. The tumour appears more shrunk than yesterday, particularly at its posterior part. The pulsation of the right temporal artery is not more distinct than it was last night. She asks for animal food. Does not complain of the wound, nor of the feeling of tightness in her neck, nor of any oppression of her breathing.

8th, eight o'clock a. m. The ligatures which united the lips of the wound were removed to-day; the temperature of both cheeks is the same. The tumour appears to decrease, particularly at its posterior part. Makes no complaint.

10th, eight o'clock a. m. Wound healed, except where the ligature projects.

13th, eight o'clock a. m. She was permitted to rise, and to go about the ward.

18th, eight o'clock a.m. The ligature came away with the dressings this morning; and from the appearance of its noose, it seemed to have been closed very tight upon the artery.

24th, eight o'clock a. m. The entire of the wound is healed, and the tumour is decidedly less than prior to the operation, particularly at its posterior part. The pulsation of the arteries of the right side of the head is still less distinct than of the left side. Her health is perfectly good.

As the tumour was evidently decreasing in size, I did not deem it necessary to take up the external carotid of the left side, which operation I would otherwise have now performed; but advised that she should return to the country, and await the further results of what had been done. She accordingly left town early in the November following, with the determination of returning in a few weeks, in case the tumour should increase, or continue so large as to render the operation expedient.

Not having heard of her for some months after she left town, I wrote a letter of inquiry to her parents, and received an answer on the 10th of February, more than four months after the operation, in which it is stated, "that the tumour was smaller than when she left Dublin, particularly on the side nearest to the wound," that is, at its posterior part. From this time I heard nothing more of the case for a long period, when the girl came to town, and called on me. I was now gratified by finding that the tumour had not only ceased to grow, but had shrunk so considerably that it caused comparatively little inconvenience or deformity. Here is a sketch which I had then taken of her, and if you contrast it with the one taken before the operation the improvement is very obvious.

Before the Operation.

After the Operation.

The girl, however, had become very anxious about her appearance, and being fully convinced of the advantage which she had derived from the operation, was most anxious that the vessel of the left side should be tied in the hope of causing

the removal of all deformity. I, however, did not consider that I would be justified in acceding to her wishes under the existing state of the disease, and, therefore, it was my advice to her to be content, and to return to the country. It is important to remark, that even at that distance of time, I believe nearly two years, since the operation, the arterial circulation at the right side of the head was less distinct than at the left.

There seems to prevail a diversity of opinion respecting the structure of those tumours of which this case affords an example. Some affirm that they are composed of cells which, on the one hand receive blood from arteries, and on the other hand transmit that blood to veins, while others support the opinion that they are formed simply of a mass of convoluted tortuous vessels.

Our present knowledge of the organization of these tumours is not, perhaps, sufficient to allow the conclusion that they are uniformly of the same structure. Therefore, I shall not say that they are never cellular, although I am disposed from the following reasons to infer that this form of texture does not prevail.

1st. I injected with wax, and afterwards corroded, a large subcutaneous nævus, and found that it consisted entirely of an assemblage of convoluted vessels, remarkable for their extremely tortuous and intricate course among each other; and also remarkable for the abrupt manner in which some of them increased and others diminished in size. Thus, in one part, there could be observed a mass of vessels of almost capillary dimensions, and in another immediately contiguous part, a convoluted set of comparatively large vessels, or a small vessel dilated itself abruptly into one as large as a goose's quill; or a vessel of the latter dimensions as suddenly contracted into a capillary vessel. In some parts, the vessels did not exhibit a uniform character for more than half an inch or an inch, yet they were always sufficiently long to present a tubercular or vascular appearance. A corroded preparation of a similar kind may be seen in the museum of the College of Surgeons.

2ndly. Whenever these tumours are placed under a very thin and transparent covering, as in the case we have been considering, they exhibit, through this transparent covering, exactly that appearance which we might suppose would result from a congeries of convoluted vessels of different sizes.

3rdly. We cannot infer that these tumours are cellular, because they may have appeared upon a superficial examination under the scalpel to present this structure. We know that the corpus cavernosum of the human penis presents, when we divide it, a cellular appearance, although the anatomy of the same organ in the elephant warrants the conclusion from analogy that the cavernous body of the human penis is composed of convoluted vessels, which, from the frequency of their anastomosis, present, when divided by the scalpel, a cellular aspect.

4thly. I have sometimes observed, that veins affected with varix have formed tumours, which when cut into, presented a complicated cellular structure, in some measure comparable, in appearance, to the vesiculæ seminales in the human subject, although there could be no doubt that these varices were produced or formed by convoluted veins.

If this be a correct view of the structure of subcutaneous nævi, it may be inferred that whatever blood pervades them is in a state of constant circulation, flowing with greater rapidity in the smaller vessels, and more slowly in the larger. It seems also a just inference, that when such tumours decrease in size, their decrease is owing, in a great measure, if not entirely, to the exercise of that vital contractility of tissue by which every part of the vascular system is enabled to adapt itself to its varying contents; and not, as has been supposed, to the coagulation of the contained blood and its subsequent absorption. And that this is the correct explanation of the mode in which these tumours decrease in size, when their supply of blood is diminished, is demonstrated by the present case as satisfactorily as could be demonstrated by any one case. In fact, the tumour did not present, at any time after the operation, nor in any part of its whole extent, that solidity which would most probably result from the coagulation of the blood contained in its vessels. On the contrary, it never acquired even that firmness which it had before the vessel was tied; and it could at all times afterwards be emptied, as at first, like a sponge,—an occurrence incompatible with the existence of a coagulum. It also seems very clear, that its vessels were never distended after the operation so fully as before; and we cannot doubt that this imperfect state of repletion allowed that gradual exercise of the contractility of tissue, which caused the steady and progressive though slow decrease in the size of the tumour.

From this view of the structure of these tumours we derive the practical inference, that whenever we attempt their removal or diminution by diminishing their supply of blood, or by compression, we should assist those operations by such means as may conduce to the tonic contraction of the affected parts. Of these means, cold

solution of astringent salts will, perhaps, be the most effectual. In the case we have been considering, it was directed that a cold solution of the sulphate of alumen should be constantly applied to the tumour, and that small bits of ice should be taken frequently into the mouth, and there allowed to melt slowly; but in consequence of the great drowsiness which existed for some days after the operation, these directions obtained but little attention.

What benefit does the result of the operation in this case authorise us to expect from tying the arterial trunks of such subcutaneous nævi as are not attended by pulsation or throbbing, or increased surrounding arterial action; for to that variety of nævus it belongs?

We have found that the growth of the tumour was not only stopped, but that its absolute size was diminished, although it had been *rapidly* increasing prior to the operation, and although the peculiarly numerous and large anastomoses which exist between the vessels of each side of the head, rendered the case very unfavourable for the experiment. If, therefore, under such circumstances, so much advantage resulted, we are authorised to hope for more complete success when the tumour is so situated that we can better command its supply of blood, and, consequently, in all cases of subcutaneous nævi, which do not admit, from their situation or connexion, of excision or compression, a ligature should, in my opinion, be applied, when practicable, to the vessels which supply them with blood; nor are the consequences which the present case authorises us to expect from this practice opposed to the inference of reason; for, in the first place, as far as our knowledge of these tumours extends, it is probable that such of them as are not attended by pulsation or throbbing, hold *nearly* the same *anatomical* relations to their arteries as those which are so attended. In fact, they would both seem to originate in the capillary vessels; therefore, if this mode of treatment be useful in the one, it may be expected to be useful in the other. In the second place, it is far from being unlikely that the ligature of such arteries as supply vascular tumours, not attended by pulsation, or throbbing, or increased vascular action, would *in the end* diminish more effectually the supply of blood to the morbid part, than a similar operation performed on the vessels of such nævi as are attended by pulsation. It may, in fact, be fairly expected, from what we know of the circulation of the vascular system, that the active state of the vessels of pulsating nævi, or of such as are attended by increased arterial action, would continue to attract, as it were, blood, while those not attended by pulsation, and whose circulation is therefore comparatively passive, would not exercise any action of that kind.

If this view of the subject be correct, it is evident that in every case of nævus accompanied by throbbing, as well as in all examples of pulsating vascular tumours, on account of which it might be deemed proper to apply a ligature on their supplying arteries, measures should be used, as well previous to as after the operation, with the view of tranquillizing, as far as possible, that excess of morbid action, upon which the throbbing and pulsation of such tumours, often, if not always, mainly depend. It is right to inform you, that I have had no experience with the treatment of nævi by seton, nor would I think of employing this remedy, where the disease is so situated as not to admit of excision, in case it became necessary.

I am not aware that there is any case on record of an operation performed with the express object of applying a ligature to the external carotid. The situation of this vessel, its relation, and the abrupt manner in which it gives off its collateral branches, have led surgeons to consider the operation both difficult and dangerous; and hence, on many occasions, when the ligature of this artery would most probably have answered every purpose, it has been thought more advisable to take up the common carotid. I preferred, however, in this case to apply a ligature to the external carotid, as I expected it would be necessary to take up the same vessel on the opposite side; for although there be cases on record of obliteration of both common carotids, I was of opinion that the ligature of the external carotids would not be attended by so much risk as that of both common carotids.

The closeness, however, with which the external carotid distributes its branches, will always require caution and judgment in applying a ligature on this vessel *at its origin*, for, if as much of this artery at its roots be denuded as would be perfectly safe on most other occasions, a slough of the origin of some of its collateral branches may be caused, and if so, secondary hemorrhage will inevitably follow. It is in this that danger consists, and not, as has been commonly supposed, from the proximity of collateral branches to the part surrounded by the ligature, preventing the formation of an internal coagulum.

In the performance of the operation, I found much assistance from the corner of the os hyoides, as a director to the exact situation of the root of the artery. In-

deed, if I had not previously determined to take that bone as my guide, I certainly should not have come upon the artery with equal accuracy. During the motions of the neck, caused by the unsteadiness of the patient, the artery followed this bone; hence the latter was *always* an unerring guide. Some inconvenience was caused by the yielding of the side of the pharynx upon which the artery may be said to lie, for the parts sank, as it were, under the knife and forceps, and rendered it difficult to proportion the degree of pressure employed in using them. On this account I found it necessary to cause an assistant to press gently, during the operation, on the opposite side of the throat.

It is evident that the effects upon the brain of a ligature of the external carotid artery will be altogether different from those which result from tying the common carotid. When the latter artery is tied, there will be, at least for a time, a greater or lesser diminution in the quantity of blood sent to the brain, whereas, when a ligature has been applied to the external carotid, it may be presumed that the brain will receive at least, immediately after such a ligature, a greater supply of blood. This will perhaps account for the headach and great drowsiness which succeeded the operation in this case, and which for three days continued to be very remarkable. It may probably also afford an explanation of the irritability of the stomach, though it is more likely that this symptom resulted from the division of those numerous ramuscules of the sympathetic nerve which surround the external carotid. There were certainly no nerves or vessels, except the external carotid itself, included in the ligature.

Such are the observations I wished to make on the case of Dunn, and I hope to deliver a lecture to you shortly on the case to which I have alluded in the commencement of the present lecture.

TWO CASES OF

FATAL ENTERITIS,

CAUSED BY HARDENED FECULENT MATTER IN THE APPENDIX CÆCI.

To the Editor of THE LANCET.

SIR,—The accompanying cases are, we believe, by no means common. Should you think them worth inserting in THE LANCET, they are much at your service.

We are, Sir, your obedient servants,

THOMPSON AND BALLER.

Westerham, Feb. 15th, 1834.

CASE 1.—April 30, 1832, J. H., aged 10 years, a robust and healthy boy, complained suddenly of a pain in his bowels, referred chiefly to the right iliac region. The pain, although continued, did not excite much attention till the evening of the 2nd of May, when a medical gentleman residing in the house prescribed some aperient medicines and fomentations. The following morning, May 3rd, we were requested to see him, and found the abdomen exceedingly tense, and painful on pressure, but mostly so in the situation of the caput coli. The bowels had been freely relieved by the medicines; the motions were liquid and natural in appearance; pulse 120 and small; great anxiety of countenance. Recourse was immediately had to copious bleeding, leeching, fomentations, &c., but without any mitigation of the symptoms. He still referred his sufferings chiefly to the caput coli. Vomiting, distention of the abdomen, &c. supervened, and he died on the following morning, May 4th.

Examination post mortem. — On laying open the abdomen, the peritoneum presented marks of most intense inflammation; the omentum was glued to the adjacent parts by recent adhesions; the interstices of the bowels were filled by coagulable lymph. As we approached the cæcum, the disease appeared to have raged with increased severity, and upon examining that part more minutely, we found the appendix vermiformis in a state of gangrene, containing within it a substance about the size of a cherry-stone, which proved to be a portion of hardened feculent matter.

CASE 2.—February 8th, 1834. C. U., aged 14 years, of delicate constitution, but apparently in good health, was attacked early in the morning with vomiting. The preceding day he had taken unusually active exercise, had gone to bed well, and referred his sickness to something he had eaten at dinner. He complained of no pain in his bowels, nor had they been constipated; but the abdomen was slightly tender on pressure. Towards evening the symptoms of abdominal inflammation became more fully developed, and were met, during that night and the following day, by the most active treatment, such as general and local bleeding, fomentations, enemata, &c., but without any decided benefit. The vomiting ceased; he was able to retain anything upon his stomach, and he complained of no pain except on pressure. Still the tenderness continued to increase, particularly towards the right iliac region. Nothing passed through his bowels; the abdomen became distended,

and on the morning of the 10th death put an end to his sufferings.

Examination post mortem.—On laying open the abdomen, the omentum was seen drawn towards the cæcum, a small portion adhering to that bowel, and in a state of gangrene. The small intestines were exceedingly distended with air, and exhibited marks of great inflammation. They contained very little feculent matter, and no stricture was found in them. The large intestines had been cleared by the enemata. Upon approaching the cæcum, the marks of inflammation became more intense; coagulable lymph was thrown out in abundance; the appendix vermiformis was found adhering to the subjacent parts, in a gangrenous state, and distended by a portion of feculent matter, of the size of a small nutmeg, and nearly as hard.

INVENTION OF THE PERCUTEUR.

CLAIMS OF MR. WEISS.

To the Editor of THE LANCET.

SIR,—Having read in THE LANCET of Feb. 15th, a letter from Mr. Fergusson, claiming the merit of an improvement upon the lithontriptic percuteur, I am compelled in self-defence to trouble you with this letter, and I request the favour of its insertion as an act of justice.

It is now nearly ten years since I invented a curved instrument for breaking calculi in the bladder by means of a screw; but in consequence of an objection made to it by an eminent member of the profession, and the great demand for the straight boring instrument, I laid it aside, and no further notice was taken of it. Some time ago, however, I showed it to Baron Heurteloup, who immediately adopted the idea, and shortly after produced an instrument differing from mine in the substitution of a hammer for a screw; and, trusting to the little notice that had been taken of my invention, claimed it as his own. The Baron's instrument, I admit, may be an improvement upon mine, more particularly where hard calculi are to be broken, but this of Mr. Fergusson's is nothing more than an alteration, and that an inefficient one, as every one knows that a rack is greatly inferior in power to a screw, Mr. Fergusson is quite welcome to all the credit of his alteration; but he does not seem content with that, for he appears to wish to deprive me of my share in the invention, else why the ostentatious mention of the French maker, of himself and countryman, while I am not even named. This may arise from ignorance, though it is not very likely, as there is scarcely a professional man in the country but reads THE LANCET; and those who are interested in the progress of lithotrity, may remember that in the controversy between Baron Heurteloup and Mr. Costello before the Westminster Medical Society (see LANCET, Dec. 15th, 1832), my claim to the original invention of the instrument was allowed, and that I subsequently had occasion to assert my claim in the same publication, Sept. 14th, 1833, in consequence of an attempt to deprive me of the credit of it by one of the Baron's friends. The fact, that neither of these statements has been disputed, must be, I think, confirmatory to any one not blessed with obliquity of vision,—a complaint frequently attendant upon prejudice. However, if any further proof is required, I can produce a letter from Mr. Brodie, stating the fact of my having shown him my instrument nine years ago, and of his having broken a hard calculus with it; this was more than five years before the Baron Heurteloup brought forward his instrument.

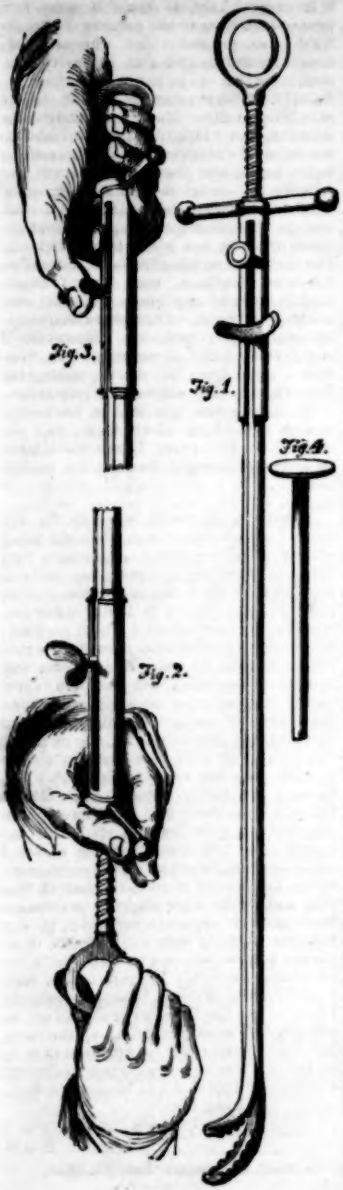
As nothing redounds more to the honour of a professional man, than the being enabled to relieve suffering humanity by a new and more safe operation, so there is nothing that gives the mechanic greater pleasure than success in inventing or improving an instrument for that purpose; and where a professional man finds a mechanic willing to save him trouble and expense, by spending both time and money on the completion of an instrument upon the chance of success to which alone he looks for his remuneration, the least he can do is to give him the credit of the invention. In this respect I have been fortunate; Sir Astley Cooper, Mr. Brodie and other eminent surgeons, have, I am proud to say, given me full credit for my inventions; but others, whose names I could mention, have not had sufficient generosity, and fearful of its being known that they had received the slightest assistance, have tried to suppress my claim, though hitherto without effect. Had Mr. Fergusson been ingenuous, he would have acknowledged that his instrument was only a modification of mine; but ingenuousness, I fear, is not his *forte*, and I should not be surprised if, upon the failure of the rack, he were to put forth a modification of it by means of a screw; but with your assistance I will *screw* him down to his own *rack*.

I am, Sir,

Your obedient servant,

JOHN WEISS.

London, 62, Strand Feb. 24, 1834.



Description of Engravings.

Fig. 1 is a representation of my latest improvement for crushing and extracting calculi.

The two curved blades are opened and closed by means of a thumb-piece, the screw and cross-bar forming the handle as in *Fig.* 3. The blades can be closed with very great pressure, by the action of a powerful double-threaded screw, the cross forming the handle, as in *Fig.* 2.

Percussion is applied by substituting for the screw the plain rod (*Fig.* 4), when that part of the instrument nearest the cross should be held firmly in the left-hand, or, for the greater security, placed in the mortice attached to Heurteloup's operating-table, and the head of the steel-rod struck with a hammer. Great additional force too is obtained by placing the instrument in the mortice as for percussion, and putting the rod through the ring of the screw, which then forms a powerful lever to turn the screw.

This improvement, therefore, is a combination of my original instrument, invented in 1821, for extracting calculi from the male bladder (which has been so successfully used by Sir Astley Cooper, Mr. Brodie, Mr. Guthrie, Mr. Copeland Hutchinson and others), and of my invention of 1824, for crushing calculi in the bladder by the force of the screw, with the additional force of percussion.

This instrument when constructed in a proper manner, and the fixed blade cut from a solid bar of steel, can be made of a moderate caliber, and yet sufficiently powerful to crush the hardest calculi, and thus supersede the whole of the instruments hitherto invented.

The present is a representation of a small instrument, more particularly adapted for fragments and small calculi, and is intended as an addition to the present apparatus for lithotripsy, more particularly as a great quantity of particles can be removed in the instrument without increasing its size, the two blades in this being made hollow on purpose to receive them, and the fixed blade being also hollow, offers the advantage of a scoop to collect such particles as would be lying at the bottom of the bladder.

PHYSIOLOGICAL CONJECTURES

RELATIVE TO

RESPIRATION.

By PHILALETHES.

§ I. It seems to be proved by the researches of Legallois, M. Flourens, and Sir Charles Bell, that the primum mobile of respiration resides in the medulla oblongata.

§ II. There are many facts which seem to render it probable, that inspiration is excited by the impression of venous blood upon this part (§ I.) of the nervous system.

1. There is no effort to inspire in the fœtus, because the blood which comes in contact with the medulla oblongata is uniformly arterial, through the influence of the placental circulation; but when the fœtus is separated from its parent, the blood becomes venous, flows in contact with the medulla oblongata, and excites inspiration.

2. In the celebrated experiment of Hook, of blowing a stream of air through the lungs, the pleura being pierced by numerous incisions (*Phil. Trans.*, No. 28, 1667), the animal remained still as long as this stream was continuous, and the blood was uniformly arterial, but the moment the stream was interrupted, and the blood became venous, the animal struggled, first (I suppose) with inspiratory efforts, and then with convulsion.

3. In ordinary respiration, the blood which passes through the lungs at the period of full inspiration is arterial; but that which traverses the lungs during expiration, is comparatively venous, the residual air in the respiratory organ containing less oxygen and more carbonic acid than during inspiration; this blood arriving at the medulla oblongata, excites renewed inspiration.

4. This view of the subject is confirmed by the experiment of Bichat (*sur la Vie et la Mort*. ed. 3. p. 227), and imitated by Dr. Addison and Mr. Morgan, in their admirable Essay on Poisons. Two dogs were placed side by side; the carotid of each was divided and crossed, so that the carotid of one conveyed its blood to that of the other, and *vice versâ*. The trachea of one of the dogs was then compressed; the other manifested the usual symptoms of asphyxia (I suppose), efforts to inspire, and then convulsions, for they are very imperfectly detailed. These were the effect of the contact of venous blood with the medulla oblongata, &c.

It is well known that the contact of venous blood with the medulla oblongata (asphyxia), produces, first, convulsive efforts to inspire, and then actual convulsion.

§ III. There is an interesting subject of inquiry in the singular ratio which subsists between the circulation and the respiration, the number of pulsations of the heart uniformly observing a given proportion, *cæteris paribus*, to the number of respirations. Exercise augments both, and in an equal ratio. The perfect repose of sleep has a contrary effect. In fact, as the simplest effect of rest or effort, the blood circulates more slowly, or more rapidly, through the lungs, and there are, consequently, more frequent alternations of contact of arterial and venous blood with the medulla oblongata, and, as a further consequence, a corresponding augmentation in the number of respirations.

2. The singular phenomena observed in the duplex child (Ritta-Christina), described by M. Serres, illustrate this point in a remarkable manner.

§ IV. It is still doubted whether the larynx be preserved open by means of muscular action. This question is fully discussed, and the affirmative established, by Legallois (*Œuvres*; ed. Paris, 1824, t. i, pp. 171—180). The subject still deserves to be submitted anew to the test of experiment. This the writer proposes to do.

§ V. It is still a question whether the bronchia have any muscular structure and action. Philalethes purposes to determine this question in the following manner:—The trachea, bronchia, and lungs, being removed from the thorax of a very young animal immediately after decapitation, a glass tube is to be adapted to the trachea; water, at blood-heat, is to be poured into the tube, until, having filled the bronchia, it remains stationary at a given point. The whole is then to be immersed in water of the same temperature; a galvanic shock is to be passed through the water. If the bronchia be possessed of muscular properties, they will be contracted, and the fluid will be made to rise in the tube.*

§ VI. The next question to be determined is, whether the actual contraction of the bronchia during life can be proved, though the fact of muscular structure and function must be admitted to imply its actual agency in the phenomena of life. The question may, however, be determined experimentally in the following manner:—Let the young animal be deprived of its

* The grand question of arterial contraction may be decided in the same manner.

brain, its thorax be freely opened, and the tube fixed in the trachea, as before; then let the nostrils or the larynx be stimulated; the bronchia will probably contract, through the influence of the reflex function, recently explained by Dr. Marshall Hall in the *Philosophical Transactions* just published, and the coloured fluid will rise in the tube. The condition of the larynx during a similar experiment may also be observed. (See § IV.)

§ VII. There is still another interesting point of inquiry—viz. the effects which arise from any subversion of the ratio which subsists between the quantity of respiration, and the degree of irritability. These effects may be promptly or slowly fatal, according to the degree of that subversion.

1. If an active animal of the class mammalia (in which the respiration is high and the irritability low*) be submerged in water, death speedily follows; or if it be confined in a limited portion of air for a time, death will ensue the next day, or on the second or third succeeding day.

2. If, on the other hand, an animal be taken in a state of hybernation, and be speedily roused into activity—into active respiration,—it will also die after an interval of greater or less length. The sudden change to high respiration, whilst the muscular fibre is highly irritable, like the privation of air, when it is slightly so,—in a word, the subversion of the just ratio between the respiration and irritability, is, in either case, of fatal issue.

3. Similar effects arise from placing an animal of the same class (mammalia) in oxygen gas. The respiration is unduly augmented, and its due ratio to the irritability subverted.

§ VIII. Lastly, it is an interesting fact that whilst respiration constantly tends to excite and exhaust, and venous blood to destroy the irritability, the former maintains or restores, and the latter excites, that property of the medulla spinalis upon which the reflex function depends.

These conjectures Philalethes proposes to submit to experimental proof and investigation; meantime they may not be altogether unworthy of being submitted to the eye of his medical brethren.

February 12, 1834.

* I am astonished to observe men of talent still blundering upon this subject. It is said that an eminent lecturer appeals to birds as animals of high irritability! The error consists in mistaking *activity* for *irritability*,—the character of the *entire animal* for that of the *muscular fibre*. Let the gentleman to whom I have alluded come to the question with his Voltaic pile, and there will soon be an end of all dispute upon this matter.

DEATH FROM

PERFORATION OF THE RECTUM WITH A BOUGIE.

To the Editor of THE LANCET.

SIR,—You will oblige me by giving insertion to the following case in your valuable publication. I am, Sir, your obedient servant,

ROBERT PARKS, Surgeon.

Bury, Lancashire, Feb. 24, 1834.

A clergyman of this town, a highly-respected man, and on whom a wife and eight children depended for support, became suddenly afflicted with inflammation and mortification of the bowels, occasioned by the improper and incautious use of the rectum bougie. He had been several years troubled with irregularity of the bowels, and had used a great variety of aperient medicines to preserve himself in any degree of comfort; he had also used the lavement syringe with great benefit. He felt persuaded, however, from his own feelings (and contrary to the opinions and reasonings of many medical friends whom he consulted), that a narrowness of the gut was gradually coming on, and that unless some means were adopted to dilate the passage, and prevent the increasing difficulty in its function, he should ere long be incapable of passing his feces. As he continually laboured under this impression, he consulted a surgeon who recommended the use of bougies, and an assortment of various sizes was procured. They were well formed, and adapted for the purpose intended, and were regularly used, with apparent ease and satisfaction to the sufferer, up to the day of the fatal attack of illness. That morning he used the bougie twice, but not being sufficiently relieved by the first attempt, he passed the instrument a second time, and remarked that he did so much easier than at any former introduction. On reaching his home at about one o'clock p.m. I was sent for, and on arriving I found him complaining of acute pain in the pubic region, accompanied with difficulty in passing urine. A general chill pervaded the whole frame. I directed him to go to bed and apply heated substances to the surface, to drink warm diluents, and to take some medicine which I sent him. In less than half an hour I was again required to see him; the pain had greatly increased, and had ascended to the right side, accompanied with difficult respiration; he still continued cold; artificial heat was applied with great diligence, and after some time

reaction was produced. He was bled copiously, producing syncope, but without any abatement of suffering, and I gave him strong cathartics, which the stomach retained. No evacuation *per anum* took place, but he passed urine freely during the night; twenty-four leeches then were applied to the side, and enemas were administered, but all without relief. He rapidly became worse, his pulse sank, respiration became laborious, the stomach was greatly oppressed, and he died at about four p.m., twenty-six hours from the commencement of the attack.

Sectio cadaveris.—On opening the abdomen, much very offensive air escaped, raising the small intestines. Very extensive inflammation pervaded the whole canal; the lower portion evinced the greatest degree of inflammation, with extensive mortification. A dark-coloured pus-like fluid was contained in the cavity of the pelvis, or, rather, a fluid presenting the appearance of light-coloured feculent matter. The same kind of matter adhered to the lower surface of the intestines. Lymph had exuded, and formed adhesions among many of the folds of the small intestines. A ligature being applied above the sigmoid flexure, the rectum was removed, and in the middle portion was found an opening, which penetrated the gut and adjoining portion of peritoneum. This must have been caused by the too frequent use of the bougie. Through the opening a portion of liquid feces had escaped, occasioning inflammation, mortification, and death.

POISONING WITH THE ANANTHE CROCATA.

To the Editor of THE LANCET.

SIR,—On Sunday, the 6th inst., seven cows, the property of a farmer in this neighbourhood, broke into a field in which labourers had been clearing a water course, and ate a quantity of the roots of the *œnanthe crocata*, which destroyed them all, from whence arose the following case, which I transmit for insertion in THE LANCET, if you deem it worthy a place in your valuable Journal. And am, Sir, yours, &c.,

JOSEPH FROYSELL, Surg.

Knighton, Radnorshire, Jan. 27, 1834.

Mary ———, dairy maid, ætat. 28, on the 13th inst., at eight o'clock a.m., deliberately washed, and ate, a piece, of the size of a walnut, of the root of the ananthe crocata. Finding no effect result from the poisonous substance, except a slight degree of dizziness, at eleven o'clock she repeated the dose. About half-past twelve she was found upon the bed in a state of insensibility. I saw her at a quarter before one, when the pupil of the eye was contracted to the size of a pin's head. Pulse 40, small, and wiry; skin cold and moist, especially over the hands and forehead; breathing free; countenance natural; speechless. She had lost the power of deglutition.

In the matter ejected from the stomach before my arrival, and which still remained on the floor, I found parts of the root in a distinct but well-masticated state. After a fruitless endeavour to make her swallow, I had recourse to the stomach pump, and drew away about (when collected) a tablespoonful of the root, mixed with the water previously injected. Finding the œsophageal tube obstructed, and fearing that it was occasioned by the root, I injected half a dram of the sulphate of zinc in solution. In about five minutes this acted upon the stomach, bringing with it a few lumps of the root too large to have passed through the tube of the instrument. Shortly afterwards she began to speak incoherently. I then directed her to be kept constantly in motion between two men; the vomiting was encouraged by means of warm water, which she had now the power of swallowing. None of the root making its appearance, and feeling satisfied that it was all ejected, I administered repeated draughts of the acetic acid diluted with water. Much of this was thrown up, but she recovered rapidly after its administration.

Five p.m. The pupil had dilated to about the size of a large grain of pearl barley; bowels had acted (no portion of root was discovered in the evacuation); vomiting ceased; pulse raised to 70, small, and jerking; skin hot; sensibility returned; was able to answer questions.

Eight p.m. Complains of headach. Iris acts freely. Ordered an aperient mixture, which was retained by the stomach.

14th. At my visit this morning I found her down-stairs. The bowels had acted freely, no symptom of the poison remaining. She was not conscious that the stomach-pump had been used.

PHRENOLOGICAL SOCIETY.

Session 1833-34.

Dr. ELLIOTSON, President.

REPLY TO ANTI-PHRENOLOGISTS.

In concluding our notice last week (page 835) of the remarks recently made by Dr. Elliotson, on the writings of an anti-phrenologist, Dr. Kidd, of Oxford, the report contained the following words, from which point we now resume the thread of his discourse:—

The other work to which the President called the attention of the Society, was one written by a curate of the name of Taylor, and of which, he said, he should never have heard but for the advertisement, in which he saw that young persons were to be put on their guard *against the wicked doctrines of phrenologists as well as those of geologists!* The work is a sort of catechism, and thus modestly and tenderly begins:—"Are you aware that there is a certain set of men calling themselves 'philosophers,' who maintain that the superiority of men over brutes is owing to a better organization of his brain?" "Yes, I know that well, and am fully prepared to refute it as the offspring of *dishonest presumption*. No man can believe it for a moment, much less *dare to venture his eternal all upon it*. Neither have any maintained such opinions who have not, *by their pride of heart and intellect*, hardened themselves *in daring impiety* against the all-seeing providence of God, and who, like a stag at bay, set themselves, even against hope, in stern defiance of his retributive justice."

This excited a general burst of laughter amongst the members, which gradually subsided into disgust. The President afterwards remarked that it appeared to any one that if the Almighty had been pleased to connect superiority of mind in this present world with superiority of brain, there could be nothing presumptuous, dishonest, proud, or impious in saying so. On the contrary, the examination of the various excellences of the brain in the various orders of brutes, and the various orders of human beings, fills the mind with wonder, admiration, awe, and reverence of the Supreme Being.

The next question and answer were,—"But what can you say of the organization of the brain?"—*Ans.* "With respect to the substance of the brain, it consists of a pound or two of a pulpy watery matter, which fills the upper part of the head, and sends off strings of the same material to different parts of the body." (*Loud laughter at this philosophical statement.*) The President remarked, that to speak contemptuously of the most wonderful organ among the works of God, was impious in the extreme in the eyes of all persons who make no boast or profit of their religion. "This substance," the writer goes on to say, "from its consistency, its composition, its organization, and its appearance, in whatever light viewed, is as unlikely to produce thought, as any other kind of matter." The comment of the President on this paragraph was, that he had enumerated enough well-known facts in his note B to section 8 of Blumenbach's Physiology, to prove, what no one in his senses could doubt,—that the brain is the indispensable organ of the mind in the beings of this world, the mind being varied according to its physiological, and perverted according to its pathological, state. However strange it may be that the brain can execute this function, such is the fact, and to believe it does so by the physical powers given to its peculiar structure and composition by God, or whether, by a hypothetical something pervading it, and called a soul, the difficulty is the same, for that something must be as far past our comprehension, as a mere physical power bestowed upon the brain by the Almighty; and to suppose that he could not endow it with the power of mind, if it seemed good to him, would be impious. Some phrenologists believe in the existence a soul; others do not. The question is unconnected with phrenology, and never discussed by Gall or his pupils, who write expressly on phrenology. A great writer upon divinity—Locke—in his reply to the Bishop of Worcester, says, "All the difficulties that are raised against the thinking of matter, from our ignorance or narrow conceptions, stand not in the way of the power of God, if he pleases to ordain it so. The faculties of brutes prove, either that God can and doth give to some parcels of matter a power of perception and thinking, or that all animals have immaterial and, consequently, immortal souls, as well as men; and to say that fleas and mites have immortal souls as well as men, will possibly be looked on as going a great way to serve an *hypothesis*."

"But," says Mr. Taylor, "do not phrenologists maintain that the brain is divided into a number of compartments called 'organs?' What say you upon this subject?"—*Ans.* "Phrenology I consider in two lights. First, Hume, the sceptic, or infidel, affirmed man to be a bundle of ideas,—that there is no such thing as an immortal spirit. His followers eagerly seized upon the supposed fact of there being those

organic compartments in the brain, and maintained that the mind of man was a compound of a certain number of organs, the seat of different faculties. As, first, in the forehead, the intellectual faculties; secondly, in the upper and middle part of the head, the sentiments; and, thirdly, in the hinder and lower part, the animal propensities. All these somehow, like David Hume's bundle of ideas, are jumbled or combined together, to make that rational, feeling, and world-enjoying creature called 'man.'"

Now (remarked Dr. Elliotson) phrenologists are not the followers of Hume. As phrenologists they never speak of him. Gall knew nothing of him. So far from Hume believing that the brain had compartments for various faculties, he denied all proof that matter of any kind existed at all. Long before Hume was born, the various faculties of the mind were supposed to reside in distinct portions of the brain, as may be seen in old quotations in Burton's "Anatomy of Melancholy." The use of the words "jumbled or combined," as though those words were synonymous, shows the dogmatism, the unfairness, of this pious writer's mind.

"Then you reject phrenology *in toto?*" *Ans.* "By no means, as I shall afterwards show. There are various instincts or attributes of the soul. In different individuals certain of these are more active than in others; which is equivalent to saying that the soul of one man is more on the alert to one individual enjoyment than the soul of another is to that enjoyment. But it is well known that mechanics have stronger or more sinewy arms than the mere student, —the washerwoman larger hands than the lady. Such being the case, there seems to be no reason why the soul, which throws, the weight of its will into the balance of intellectual enjoyments, and another which is ever indulging in mere feelings, while a third is all for animal enjoyments, should not exercise almost exclusively different portions of the brain. And if so, undoubtedly the part of the brain the most used will be the largest; for it is always found, that the more intense or active the thought, the more rapidly the blood flows through the head."

"But have you not in this granted all that the phrenologists ask?"—*Ans.* "Perhaps all that some of them ask, but certainly not what those of the Hume school ask;—for *they*, placing the power in matter, say that the large organ gives the superior ability, more intense feeling, or headlong propensities; *I*, on the contrary, say, that the soul enlarges its instrument, for the greater the rush of blood is to any part, the more is that part enlarged, at least during the earlier part of a man's life; and thus the brain, as a lobster enlarges its shell, elaborates the extent of the cranium, according to its own bulk. In this case the shape of the head may be an indication of the bent of the soul, and thus far all anatomists and phrenologists agree."

The comment of Dr. Elliotson upon this was, that if there be two parties in phrenology, one of which is rational, it is unfair and irrational to charge upon the science of phrenology the absurdities of the other, because phrenology, it is allowed, does not necessarily participate in these, which, therefore, can afford no objection to it. Then as to size being the mere effect of use, every one knows that a muscle or any other part grows the more it is used, and probably the brain or distinct parts of it will do the same. But use does not explain the different size of the bodies, or particular members of different individuals. One is little,—another big; one by nature has large,—another small hands; and no use will alter them within a certain limit. No exercise will make a dwarf a giant. Some are all muscle, if we may so speak, by nature; others are spindle-shanked in spite of their exertions. Parts of the body not exercised voluntarily, differ. Some are born with large noses,—some are snubs,—the former not from great use, and the latter not from want of use. So it is with the brain and head. In children, all placed under the same circumstances from the first, these differences are observed, and if we examine through the series of animals, we find the same variety, each species having its distinct size and form. The influence of exercise no phrenologist denies; but, besides its effects, each has by nature a certain development of brain, as of all other parts, and exercise and want of exercise produce only limited effects upon the natural development which is bestowed in original diversity upon each individual. Nothing, the President observed, could be more injurious to religion than attempts to support it by assailing well-established facts and just reasonings upon nature. Nature and a true revelation cannot be in opposition. The facts of nature are, indeed, a revelation of the attributes of God, and as dearly and reverently to be praised as any other, and to attempt to render the declaration of what is properly termed revelation, probable, by dogmas and hypotheses, is not only unnecessary but unbecoming. The doctrine of soul is admitted by some phrenologists and denied by others. But those who deny it do not thereby deny revelation. They consider revelation to

be the declaration of things beyond human observation or reasoning. We never could prove that there will be a life hereafter. The Scripture declares it. Therefore, and for that reason simply, without any other consideration, those who believe in revelation are bound implicitly to believe it. Bishop Watson, the great defender of revelation, says,—"This notion of a soul was, without doubt, the offspring of prejudice and ignorance. Believing, as I do, in the truth of the Christian religion, which teaches that men are accountable for their actions, I trouble not myself with dark disquisitions concerning liberty and necessity,—matter and spirit. Hoping, as I do, for eternal life through Jesus Christ, I am not disturbed at my inability clearly to convince myself that the soul is not a substance distinct from the body."

The President here closed the volume before him, and the meeting was adjourned.

MEDICAL REFORM.

NORTHERN PROVINCIAL MEETING OF MEDICAL PRACTITIONERS.

A MEETING of the General Medical Practitioners of the province of Ulster took place on Wednesday, the 12th inst. in the *Temperance Hotel*, Waring Street, Belfast, to petition Parliament for an immediate inquiry into the present state of the medical profession in the United Kingdom, and for the removal of the several grievances which the profession suffer by the impositions of the medical corporate bodies of the country. The meeting was called by a requisition signed by forty-two of the most respectable and influential medical gentlemen residing in the neighbouring towns of the counties of Down and Antrim; and almost every gentleman who attended had been commissioned to appear for, and represent, several others in his neighbourhood, who were prevented from attending by previous professional engagements. Dr. HUGH H. SMILEY, of Larne, was called to the chair, and opened the business of the meeting by a brief and appropriate address.

Mr. HURST, surgeon, was then unanimously chosen secretary to the meeting, and stated, that a number of general practitioners resident in town had waited on Mr. Tennent, M.P. for Belfast, and that that gentleman had promised to support their cause in Parliament, and had received from them documentary proofs supporting their claims. They also intended to wait on Sir Robert Bateson, M.P., to solicit his support. The Secretary then read a number of letters from medical gentlemen in Holywood, Ballyclare, Antrim, Glenarm, Portglenone, Ballymoney, Cookstown, Castledawson, Magherafelt, Markethill, Castleblaney, Omagh, Glasslough, &c., declaring their entire concurrence in the objects of the meeting, and their regret at not being able to attend. Dr. Lynn, of Markethill, said he had received promises of support from Lord Acheson and Colonel Verner, the members for county Armagh, and "that an anxiety had been expressed by a nobleman high in rank, and having great influence with the present ministry, to know the result of the present meeting."

The following resolutions were *unanimously* adopted:—

1st. "That many of the laws which now govern the medical profession in these kingdoms are unjust, partial, inefficient, and not adapted to the present condition of society, or to the advanced state of medical science; and several of the medical corporations, which have had legal powers intrusted to them, have hitherto used them as instruments of oppression and self-aggrandisement, to the great injury of the profession, and in opposition to the public good.

2nd. "That we feel as oppressive and degrading the existence of an Act passed in the reign of his late Majesty Geo. III., by which it is enacted that no medical practitioner shall be eligible to the situation of surgeon to any county hospital or infirmary in Ireland, unless he hold his qualification from the Royal College of Surgeons in Dublin; for, being members and licentiates of the Universities and Royal Colleges of the United Kingdom, we are thus excluded from these important and lucrative appointments, though by our medical testimonials we are authorised to hold other public situations equally important.

3rd. "That we view with regret and just alarm the present efforts of the 'Dublin Apothecaries Hall,' to perpetuate, by a 'New Act,' their old oppressive monopoly, the operations of which in times past have proved that *trading Company* to be corrupt, mercenary, incompetent as a scientific institution, and undeserving the confidence of the medical profession and the public.

4th. "That the wants of society in later years have created a demand for, and require the *general* medical practitioner, who necessarily officiates in every department of the healing art—as physician, surgeon, and apothecary; and, therefore, that all distinctions of grade, or name, are antiquated, unnecessary, and injurious to

the profession, — introducing invidious grounds of fancied superiority among its members; and, by varying the course of education, are detrimental to the well-being of the community at large.

5th. "That, as it appears from several sections of the proposed 'New Act' of the 'Dublin Apothecaries Company,' which are evidently intended to operate retrospectively, they would oppress and impose fines on the general practitioners now in business for pursuing that part of their profession called *pharmacy*, by a galling system of espionage and gross injustice, demonstrating that their own pecuniary interests, and not the good of the medical profession or of the public, are now, as they always have been, their sole end and aim,—we will oppose their intentions by every legal means in our power.

6th. "That the number of *mere* apothecaries in Ireland, who restrict themselves to their own proper objects of 'preparing and compounding medicines,' are but *few*—not exceeding *twenty*; and for these to have a law whereby they might lord it over their superiors in the profession—the *six thousand* physicians and surgeons,—and inflict penalties on them for compounding their own prescriptions, is not only in itself absurd, but contrary to the first principles of good government, the *very few* having the rule over the *many*, and those *few* the subordinates.

7th. "That, as the *mere* apothecary, whose education is usually limited to an apprenticeship behind the counter, when he commences business, practises physic and surgery, to the discredit of the medical profession, and to the certain hurt of those who may thus employ him; and as nine-tenths of the members of the profession are compelled, from the circumstances of society, to practise in *all the branches*, we believe their education should be uniform and equal, and that for this purpose, all such institutions as Apothecaries Hall, where men are educated and examined only in one department of medical science, should be abolished, and schools or colleges of *medicine* founded in their stead, where candidates for the medical profession could receive such a *general* medical education, in addition to an apprenticeship with a practising apothecary, as would qualify them for those duties, which, when they become practitioners, they will be necessarily engaged in.

8th. "That, as the Apothecaries Company," in their legislating mania, have been altogether forgetful of the public weal, in not proposing some suitable means whereby the illiterate and unqualified *empiric* could be punished, or the manufacture and sale of *quack nostrums* and *universal medicines*, which are daily destroying their victims, might be prohibited—we are imperatively called upon to urge on the legislature the absolute necessity of vesting legal powers in some competent body, which would effectually remove evils so destructive of the public health.

9th. "That petitions to both Houses of Parliament, founded on, and expressing the sentiments contained in, the foregoing resolutions, be forwarded without delay, praying *specially* for legal protection in the exercise of our professional avocations, free from all unjust restraints by corporate bodies; and that those rights and privileges, to which our medical qualifications from the different Colleges entitle us, be recognised by the laws of our country.

10th. "That the following committee be appointed to carry into effect these, with other measures proposed that are conducive to the same ends, and calculated to promote the interests of the profession at large:—Surgeons Mawhinney, Wilson, Officer, and Hurst, Belfast; Dr. Scott, Ballymacarrett; Surgeon M'Kittrick, Holywood; Dr. Smiley, Larne; Surgeon Gowdy, Comber; Dr. Forsythe, Carrickfergus; Surgeon Molyneux, Antrim; and Dr. Neeson, Randalstown. That Mr. Hurst be requested to act as Secretary, and Mr. Mawhinney as Treasurer.

11th. "That the thanks of this meeting are justly due, and are hereby given, to Mr. Hurst, surgeon, Belfast, for his talented advocacy of our cause—for his timely warning of the intentions of 'Apothecaries Hall,'—for proving *incontrovertibly*, that the true interests of the *general* medical practitioner are reciprocal with the public good."

"Resolved,—That the thanks of this meeting be given to Doctor Smiley for his public and uncompromising support of our claims, and for his very proper and dignified conduct this day in the chair."

Dr. Scott, of Dromore, in moving the first resolution, observed, that the time had arrived when the state of the profession, and the laws which govern it, should be entirely remodelled, and he hoped that their expectations from a reformed Legislature would not be disappointed.

Mr. M'Burney, surgeon of Belfast, moved the second resolution.

Mr. Mawhinney, surgeon of Belfast, moved the third resolution. He looked upon the Apothecaries Hall as an incubus on the medical profession.

Dr. Ross, of Ballymena, moved the

fourth resolution. He conceived that the division of medical practitioners into the two classes of physician and surgeon, was nominal and arbitrary; in practice they were inseparable. The distinctions which exist among medical men were prejudicial both to the profession and the public.

Mr. OFFICER, surgeon of Belfast, moved the fifth resolution. Those, he said, who could remain passive spectators, under present circumstances, were unworthy members of the profession.

Dr. SCOTT, of Ballymacarrett, moved the sixth resolution. Monopoly in trade was deemed a nuisance—how much more so was it in science! The abettors of monopoly shrank from honourable competition, and intrenched behind unjust Acts of parliament, would exercise, *exclusively*, those profitable pursuits which application, industry, and honesty, ought alone to have secured to them. Although he (Dr. S.) had attained to the highest honours in his profession in the first school of medicine in the world, he had been recommended by a licentiate apothecary to comply with the proposed "new Dublin Apothecaries Act," by getting bound *as an apprentice, for two years, to a* QUALIFIED *apothecary*.

Dr. HANNAY, of Lurgan, moved the seventh resolution. To be chained to a counter for several years was not the right mode to qualify a man for practising in the higher branches of the medical profession, though he must admit the necessity of a short apprenticeship to learn pharmacy for every practitioner.

Dr. KIRKPATRICK, of Larne, in moving the eighth resolution, said, that the evils of empiricism, and the ruinous consequences of using *patent medicines*, were too glaring to require comment. The history of the celebrated charlatan, John Long, would ever remain as a stain on the character of Englishmen; and Ireland furnished but too many examples of a similar kind. There was another subject on which he must say a few words. It had been publicly asserted, that several respectable medical gentlemen in Belfast were opposed to their views; but he found, on minute inquiry of the gentlemen themselves, that the statements were shamelessly mendacious.

Mr. WHITLAW, surgeon of Newtonards, moved the ninth resolution. He understood that Mr. Warburton had given notice of a motion in the House of Commons, for a select committee to inquire into the laws and state of the medical profession. This should encourage them, however, not in sloth, but to *unremitting* exertion, for though they had many friends, their enemies were powerful.

Mr. SHAW, surgeon of Killileagh, moved the tenth resolution.

Dr. KIRKPATRICK had a pleasing duty to perform—it was to move a vote of thanks to a gentleman to whom they were all much indebted. Mr. Hurst had come forward in the proper time to vindicate their rights. Had it not been for his timely warning in his talented letters, exhibiting in glowing colours the foul intentions of the "Dublin Apothecaries Hall"—that body might have succeeded in their worst attempts; now he had other hopes. A vote of thanks was but a trifling testimony of their grateful feelings towards Mr. Hurst, for his ardent zeal and valuable services.

Mr. HURST returned thanks for the vote. He had merely felt anxious to exalt to their proper sphere the scientific acquirements of a large class of his professional brethren. Their vote of thanks was peculiarly acceptable to him, for his views and motives had been impugned in private, though no man had come forward publicly to challenge them, and they had this day been sanctioned and confirmed by the general voice of the great mass of the profession in the north of Ireland. The medical profession in these kingdoms were under lasting obligations—he might say, they owed every thing—to the two great medical lions of the day, Mr. Wakley, the eloquent editor of THE LANCET, and their illustrious countryman, Dr. Johnson, of the *Medico-Chirurgical Review*. Whilst with grateful feelings he received their kind expression of approbation, it would ill become him, who had been battling with monopoly, to be himself a monopolist of their favours, when there were others who equally deserved them. In Dr. Smiley he had found a powerful ally, and with him he begged to share the vote of thanks.

Dr. Smiley having left the chair, Dr. Scott was called to it, when thanks were given to the former for his public exertions and his excellent conduct in the chair.

A liberal subscription was then entered into to defray all necessary expenses.

THE LANCET.

London, Saturday, March 1, 1834.

THE current of injustice is directed into a new channel at the Royal College of Surgeons in Lincoln's Inn Fields. Hitherto, this *College* has been a *Mart* for the

disposal of paper and stamps,—the trade always securing a considerable profit to the managers. The diplomas of this celebrated body having been granted with the utmost freedom, they are distributed throughout all parts of the habitable globe,—that is, in every situation where English surgeons exercise their calling.

Often has it been alleged, to the no small discredit of the profession, and to the utter disgrace of the Royal College, that for a very long series of years diplomas were granted to candidates who could make no just claims to the possession of surgical skill. But what of that? The hospital surgeons of London constituting, as they did, the entire body of the Council of the College, found that it was greatly to their advantage that the mass of the profession should be ill-informed, and should be found by the public incompetent to perform capital operations, and to undertake the treatment of the more important cases which fall to the lot of surgeons. Thus it naturally happened that the "consultation practice" of the "heads" of the College and the chief officers of our great metropolitan hospitals, became exceedingly lucrative; and it is a well-known fact that one hospital-surgeon of London, a short time since, realized, in a single year, upwards of twenty-two thousand pounds by his professional practice. The system thus pursued was rendered doubly advantageous to the Council, that is, to the hospital surgeons of this metropolis. The indiscriminate sale of diplomas produced enormous funds *directly*, and the distribution, amongst society, of incompetent practitioners, was the means of securing, *indirectly*, enormous profits to the self-styled "magnates" of the profession.

Even this *dishonesty* was surpassed by the *audacity* of its perpetrators. Having granted, or, rather *sold*, the diplomas to the candidates, and then avouched, by seal and signature, the "competency" of the individuals, to whom they were awarded, to discharge the duties connected with surgery, it might be imagined that the Council would have endeavoured to uphold the privileges and respectability of their members, and take every opportunity of insisting on the soundness of their qualifications as surgeons. Strange, however, as it may appear, the conduct of that body has been directly the reverse. The members of the College have not only been treated by the Council as menials, but have actually been denied admission into their own institution, except at stated periods of the year,—and then, under the grace and favour of the ruling body, were they permitted to enter the College only through a back door, situated in a filthy back street.

It certainly appears extraordinary, that persons could be found, who, for so long a period, were eager to rush into this College, and there throw away their money upon such a worthless document as its diploma. But then it must be recollected, that until 1815, when the Apothecaries Act was passed and came into operation, there was no institution in England to which students in medicine could resort, and obtain an apparently legal sanction for exercising the duties of the medical profession. They were shut out from the College of Physicians, unless they had spent a sixth part of their lives at Oxford or Cambridge, or had received degrees in medicine from universities situated out of England. Thus circumstanced, medical students were compelled to resort to the College of Surgeons to receive that authority to practise which the voluntary encounter of the peril attaching to an examination before the court of scrutators, conventionally conferred, or retire into the country, and enter on the duties of the profession, with no other vouchers of ability than certificates signed by interested instructors.

A custom once established in this country is not easily broken up. We cling with extraordinary pertinacity to the habits of our fathers, and thus, by acting without reflection, often inflict severe injuries on ourselves and others. If practitioners in general had discountenanced the College of Surgeons, that institution would long since have ceased to act as an odious monopolizing corporation. But the wealth it has been enabled to accumulate has given it so much power, that it has dared to engage in dishonest practices,—to disregard the voice of the profession,—to contemn the Commonalty of the corporation,—and to care little or nothing for the wants of the public.

The current of injustice, however, as we at first remarked, has—from a fresh, well-understood, impulse—taken a new direction. Heretofore, students were injured because the diploma was granted to them, but they are now injured because it is refused to them. The selfishness of the Council is, nevertheless, at the bottom of these opposite practices. In previous years diplomas had been sold with reckless profusion, that the coffers of the College might be filled by the proceeds of the sale. At the present time candidates for the diploma are rejected because the Council may be furnished with a pretext for retaining what they have so unjustly acquired, and for remaining in a position which shall enable them to *renew their misdeeds* at the first fitting opportunity. It is well remembered in Lincoln's Inn Fields, that a Committee of Parliament is appointed for the purpose of conducting a searching scrutiny into the past acts of the medical corporations. Our sinning rulers, conscience-stricken as they are, know the extent and depth of their guilt, and, like abandoned criminals, are plotting the concealment of one crime, by the perpetration of another.

In addition to the sums voted by Parliament, this College, during the thirty-three years of its existence, has extracted from the pockets of medical students upwards of two hundred and fifty thousand pounds. Of the *services* which the Council have *conferred on the public* in return for this vast amount of wealth, the managers will be called upon to render an account before the Committee of the House of Commons. This, then, is a trying, a fearful moment for the College, and we must expect that no stratagem will be left unemployed to relieve it from the dilemma in which it is placed. But does it not seem to the Council that they could resort to some more magnanimous device, some more just contrivance, for making it appear to the House of Commons that their dealings have not been dictated by avarice, than making the policy of refusing the twenty-two-pound fees presented by present candidates, a cruel pretext for the rejection of the candidates themselves. Can the Council be so blind, so doltish, as to apprehend that a comparison will not be instituted between the rejections of the past year, and those of years in which no dread of a parliamentary inquiry was felt? If not one shilling had been received by the College within the last twelve months, would that circumstance render unnecessary an inquiry into the distribution of the enormous sums which have been thrown into the coffers of the institution within the last thirty-two years? Would the demand be less earnest for an account of the funds which have been expended in instituting *medical scholarships*, in founding *medical professorships*, in rewarding the labours of *medical discoverers?* The stratagem to which they are now resorting is of too contemptible, too flimsy a construction to divert the legitimate pursuers of corporate enormities from the right, the straight-forward path of public duty.

Again; if we admit, for the sake of

argument, what we certainly in point of fact do not admit, that the examinations, as now instituted, are more efficient and just tests of the abilities of candidates than they formerly were, is it to be contended that we are to have no security for the future, no protection against a *recurrence* of those scandalous practices which have inflicted such deep injuries on the profession and the public? Leave the College in full possession of its present powers,—found no institution on more just principles,—break up the Parliamentary Committee,—exterminate that dire source of dread, public scrutiny,—and this College, in less than three months, would return again to its sordid habits, in all the plenitude of its past infamy, and abandon the profession and the community to every misery which would be consequent on the gratification of the worst feelings of avarice. It certainly is worthy of the College to reject candidates *now*, merely that it may make a show in the House of Commons of its *disregard of fees*, and its earnest desire to *protect the public* from incompetent practitioners. If the Council were influenced by any other motive, would they refuse a candidate whom they had just rejected a second examination, when that candidate dared again to brave their scrutiny under that terrible burden which their first rejection must necessarily have imposed on his capabilities, and on the kindly feelings of his interrogators? Yet such a thing has just happened, and the Council, doubtless, have already recorded it as another instance of "their desire to protect the public health." This comes of allowing the examinations to be carried on with *closed doors*. Even the commonalty of the College are ever excluded from the arena of scrutiny, and thus ten individuals are permitted, with impunity, to inflict on the candidates for entrance into an honourable profession, a wrong the effects of which often terminate only with the life of the injured party.

Among numerous rejections which have *recently* taken place in the private room of the College, is that of one candidate who has protested against his examination as an *unfair* one, and who, relying on his qualifications, and his capacity to surmount an impartial practical examination, has appealed to individuals belonging to the Court of Examiners, soliciting, and obtaining, a promise of interference to obtain for him another opportunity of being examined. Having then addressed the Court of Examiners officially on the subject, this aggrieved gentleman received from the Secretary the following communication:—

"College of Surgeons,
Feb. 21, 1834.

"Sir,—Having laid before the Court of Examiners your letter of the 13th instant, I am desired to acquaint you that the Court cannot admit you to re-examination before the expiration of the period of six months from the 7th instant, and am, Sir, your most obedient servant,

(Signed) "Edm. Belfour, Sec."

Without offering any opinion respecting the attainments of this candidate, further than stating our belief, founded on the written testimonials of competent judges, that he is amply, fully, qualified to engage in the practice of surgery, we ask,—can anything be more reasonable, more confirmatory of the extent of his knowledge, than his demand to be subjected to another examination? And, at the same time, can anything be more inquisitorial or unjust, than the unexplained refusal of the Court of Examiners to attend to this bold application of the rejected candidate? The refusal of the Court smacks so strongly of tyranny and injustice, that it seems to say, "No; if "we admit him again, he may mark down "the questions and the answers, and his "replies may be so complete, that we may "be compelled to give him his diploma,

"because in the event of refusing we "should be universally condemned,—"whereas, if he passed, we should ac-"knowledge to the world that his exa-"miners acted most unfairly at the first "trial. Our refusal, therefore, must be "peremptory."

There is another point yet to be noticed. This candidate had attended, and necessarily obtained his certificates of qualification from, one of the private schools of medicine,—that is, from one of those establishments, which, from having *no official connexion with the hospitals*, happened to have *no family connexion with the Council*. It is alleged—we know not how truly—that the students of some of the private establishments are systematically insulted by more than one member of the Court of Examiners, though to one is restricted that peculiar, uncourteous, ungentlemanly, demeanour which causes him to be spoken of as the most unfair, the most overbearing, of the set.

Without anticipating what will be the more important of the changes in our medical laws, we may be allowed to predict that hospital teachers will no longer have the opportunity of passing in private their own *uninstructed* students, and rejecting as "unqualified" the *well-instructed* candidates of the private theatres of medicine. The late Mr. ABERNETHY urged as a reason for amending the regulations in favour of the lecturers and surgeons connected with the hospitals, that it was "high time they should take care of themselves." In other words, that they should look to the filling of their own pockets, and disregard the diaphonous coffers of academic opponents. The Council have acted on the suggestion, and they may have profited by it, but nevertheless, all things considered, it cannot be said that they *prospered*. They have lost reputation quite as fast as they have acquired money, and the puny trick to which they are now resorting, instead of relieving their characters from the ignominy of past deeds, will cast upon them a terrible weight of additional disgrace. The manœuvre is most palpable. They may reject nine out of ten candidates, but they will not acquire the respect or confidence they seek. Their love of pelf is too deeply rooted to be shaken or removed by the vote of Parliament for the appointment of a Committee. A recollection of the insults to which the members of the College have been subjected, cannot be obliterated by the perpetration of injustice on candidates for the diploma. But are there to be found intelligent young men who, under the present aspect of affairs, will rush to the College for the twofold purpose of squandering their money and incurring disgrace? Of what use is the diploma? None, except to the man who finds that it is one of the testimonials required from him as the occupant of some public office. To surgeons in private practice it *is* of no use, it *can* be of no use. It confers *no right*, it awards *no privilege*, and it indicates not even the semblance of scientific acquirement on the part of its possessor. What man in his senses, therefore, would voluntarily pay twenty-two pounds for such a document? Look, too, at the other side of the picture. The individual who has the folly to offer this bonus to the funds of a sinking and worthless institution, incurs the risk of being thrust rudely from the door, with an *attempt*—for it is only *an attempt*—to evince his incompetency by branding him with the word "REJECTED." Let those candidates who are desirous of entering the profession, *pending the Parliamentary inquiry*, obtain their licenses to practise from Apothecaries Hall, under the Act of 1815. The examiners of *that* corporation are empowered to confer *legal* privileges on medical students, and thus the licentiate of the Company, with respect to his rights, as conferred and se-

cured *by law*, stands on infinitely higher ground than can any mere member of the College of Surgeons,—the Council of which body are now engaged in the valiant enterprise of making scape-goats of medical students, in order that they may stand with unsullied hands at the bar of the Committee of Parliament.

A COPY of resolutions lately adopted at a great meeting of medical practitioners residing in the north of Ireland will be found in this week's LANCET, together with very brief notices of the remarks made by the gentlemen who moved and seconded the resolutions, condensed from the *Belfast News Letter* of the 22nd Feb. It has often been alleged on this side of the water, that the medical practitioners of Ireland take no interest in the question of medical reform. Such allegations, we presume, will not be repeated.

The Irish Apothecaries Act of 1791 is about as stupid a piece of legislation as the London Apothecaries Act of 1815. There has been this difference, however, with respect to the *effects* of the two measures. The former was not made an instrument for interfering with the rights of legally-qualified members of the profession, until the mature period of twenty-seven years had elapsed, whilst the powers of the latter, in less than half that period, were directed with deadly aim against the rights which hundreds of medical practitioners had enjoyed as fellows, members, and licentiates of several of the most eminent Universities and Colleges of the empire. We cannot allow this opportunity to escape, without earnestly recommending our professional brethren on the other side of the Channel, to transmit whatever facts have come within their knowledge, to Mr. WARBURTON, the chairman of the Committee of Inquiry. It is also of importance that the names and addresses of parties who can prove the statements in evidence, should be transmitted at the same time, in order that there may be some one before the Committee, should Mr. WARBURTON consider the testimony of sufficient importance to demand such a proceeding.

Now that the Committee is sitting, it is the duty—the imperious duty—of medical reformers to ply the Committee with *evidence* of the grievances of which the profession have so long complained.

INTERCEPTED LETTER.

[ADVICE TO A YOUNG LONDON PHYSICIAN.—LETTER 5.]

"MY VERY DEAR YOUNG FRIEND,—I have already called your attention to some striking points well deserving your consideration on commencing practice in London; and whilst I have had the candour to state to you some difficulties which you will meet with on the road to fortune, I have also shown you how, by a little management, and an occasional but legitimate bit of *gaucherie*, these are to be overcome. I have also shown you how sensible people are to real merit in this happy land of liberty, and hence it is, 'that there has arisen a succession of able 'and *learned* men who have been distin-'guished by their *great* attainments, and 'have added a *dignity* to our profession 'which has raised it pre-eminent in Eng-'land above the consideration which it 'obtains in any other country in the 'world! *Esto perpetua!!*'* I could give you many instances among the living as well as the dead, of the great elevation which talents and a high moral feeling have achieved in our profession, and I will take an opportunity to illustrate this important feature in the history of English society by giving you, at a future time, a history of my own progress in life, and that of Sir WILLIAM KNIGHTON, and many other great and learned court physicians, to stimulate you to industry.

"This leads me now to mention, that your classical learning must, sooner or later, procure you a Court appointment;

* See, my dear young friend, my late address at the College of Physicians, of which printed copies are circulating in private.

and on no point do I feel more confident to advise you than on your duties and conduct as a medical frequenter of palaces and other great houses. You may have heard it said, that I am more liberal in making promises than in performing them; but this you may also have heard of the Prime Minister. When, however, I deliver myself candidly and distinctly, and no one comes in the way whom it is more my interest to serve, I may be strictly depended on, and rest assured that I have entered you on my list for *promotion*. Only look at the course of my long life,—how steady I have been in pursuing one upright and honourable path. Only look how faithfully, for our own party, I managed to arrange his present dearly beloved sovereign's medical staff; and especially how,—along with my dear and disinterested friend Sir WILLIAM KNIGHTON,—I got the appointment of sergeant-surgeon for Mr. BRODIE, the King himself having absolutely wished and intended to give it to Mr. KEATE, who was not quite so much of *my* party as Mr. BRODIE. This I call *true friendship*. You may, therefore, rely on the consistency and fidelity of my services.

"In the meantime, though you are a true conservative, or preservative, like myself, you must appear to support the present men in power, so that your political creed can offer no objection to your receiving a Court appointment.

"You are, no doubt, aware of the strict confidence usually reposed in medical men by their patients; and the propriety of their never disclosing or talking about the affairs of the sick, which, however, like many other good rules, has its exceptions. Nothing more delighted my ever-to-be-lamented and most dearly beloved late friend and monarch GEORGE the FOURTH, than a medical gossip, and I used to amuse him exceedingly with narrating curious cases, particularly of diseases of the sexual organs, with little *scaldudery* commentaries. It gives importance to your profession to talk of attending this Countess and that Marchioness, and this Duke and that Duchess. It is astonishing how many people like to gossip about diseases, and the ladies are sure to simper whenever you can whisper to them any little sinnings or misgivings of such a person, for instance, as a high church dignitary. Such, my dear friend, is the wickedness of this age, and the immoral influence of the Reform Bill, that the sins of the flesh, even of our clergy, create amusement instead of dismay among the Court circles.

"At Court you must preserve the utmost silence, and appear to see *nothing*! That good old man—now, like myself, in his dotage,—Sir GILBERT BLANE, was sent to Coventry at the palace, for not being able to hold his tongue. Sir GILBERT, like many of us poor mortals, had a great deal of vanity, and he used to be much elated by his attendance at Carlton House. When, on a trifling occasion, the PRINCE REGENT was indisposed and Sir GILBERT was sent for, his Royal Highness was surprised to see the circumstance of his illness and Sir GILBERT's visit mentioned next day in the *Morning Post!* The Prince, who was as sharp as a lancet, instantly sent to the office of the newspaper to discover who was the informant, when lo and behold! the paragraph that was handed over to his agent was in Sir GILBERT's own handwriting, and the Prince never again commanded the worthy Baronet's assistance! His Royal Highness, however, had also other reasons for ordering him to quit. BLANE being originally a Dissenting parson, never could get rid of a certain sanctified, devout, death-like expression of countenance, which his Royal Highness used to compare with my cheerful and courtly smiles, my polished and flexible demeanour, and my dignified and accommodating disposition. The Prince, too, could not endure a formal practice which Sir GILBERT had of taking from his pocket at every visit a dirty memorandum-book, wherein he used to note down every particular of every case, instead of storing them up in his own brain; and nothing could be more laughable than his Majesty's mimickry of Sir GILBERT feeling his pulse, with his immoveable features and intolerable precision of manner.

"Another matter which may be of the greatest importance to you when you come to be connected with the Court, is *bulletin* writing and signing. I have pointed out, and, I believe, to the perfect satisfaction of all reasonable and thinking men, that a 'bulletin' is a nondescript sort of thing,—that it is a document not meant to give any kind of *information* to the public as to the real state of the royal sufferer. Hence the universal approbation which those bulletins obtained in the Court circle that were published during the last illness of my kind friend and beloved sovereign GEORGE the FOURTH. Sir WILLIAM KNIGHTON and myself took infinite pains in manufacturing them, and, as you know, Sir MATTHEW TIERNEY *signed* them. There were in all 66 bulletins put forth, and they were so ingeniously composed, that, without any embarrassment to the reader, the first might have been the last, and the last the first; and as those bulletins may apply to any disease, if at a future period any of the royal family should have an illness re-

quiring *bulletins*, you may, with perfect propriety, make use of any one, or more, of mine issued on that occasion. You will find them all printed together in the inconvenient journal, and you cannot spend an evening more profitably or more agreeably than in carefully studying them, and paying particular attention to the classical quality of their style, and the perspicuity of their composition.

"You flatter me, indeed, by the terms of approbation which you are pleased to bestow on the importance of the advice and moral precepts I have given you. In all my letters I have purposely avoided quoting ancient authorities, as these would be as useless to you as they are imposing and ornamental in a public oration. You flatter me also, in requesting me to name some surgeon on whose advice your brother could rely, as to the safest and surest path he can follow to get into good business as a London pure surgeon.

"Now, there is no man I know who is more competent to advise in this matter, or more experienced in the ways of the world, than Mr. BRODIE. He has himself ascended from the very bottom of the ladder. He came to London from Salisbury, with scarcely a coat on his back, and by making himself useful in all ways unto all men, never throwing away the chance of a fee, and confining himself to *pure* surgery, he has acquired a great character. Sir ASTLEY could also tell your brother a great deal, and put him up to a thing or two; but this worthy Baronet is so bewildered at present by the *exposé* of his partner and assistant, that his opinion, like an Edinburgh degree, is really at present not worth one farthing.

"I ever am, my dear young man, with a high moral feeling and a sincere wish for your success, yours, most truly,

"——— ———.

"Feb. 23rd, 1834.

"P.S.—I am hastily summoned to Apsley House, where I have been much occupied lately with the Duke of WELLINGTON, in composing for him the Latin speech he is shortly to deliver at Oxford. His applying to me on this occasion is most flattering, but his Grace—and far more I myself—would not like any one to know of this, as such things ought to be, and are always, considered strictly confidential among all moral, pious, and honourable men."

ST. BARTHOLOMEW'S HOSPITAL.—*To the Editor of* THE LANCET.—Sir, We were punctual to the time specified by Mr. Mason for our meeting in the museum: this the whole class can testify. After waiting twenty minutes, to our no small inconvenience, and finding that person was not forthcoming, we naturally conclude that either he is ashamed of the part he has taken, or else is the "Bartholomew Pupil" himself. In order if possible to ascertain the truth, we thought it advisable to seek him in his own quarters, and accordingly called at nearly every respectable house in both Great and Little Queen Street. Our search was, however, fruitless, and we had no alternative but to rest content with the answer invariably given to our inquiries, "*that no one bearing that name resided there.*" Since what has occurred, we strongly suspect that his communication in THE LANCET is in reality quite as anonymous as that of his friend, and as such equally contemptible. Being both of the same opinion, and being anxious that no misunderstanding should exist, we here, once for all, declare, that unless the "Bartholomew Pupil" chooses to give up his name, and come forward openly himself, we can have nothing further to say either to him or any of his coadjutors, and that any future appointments or communications whatever will not be attended to. We remain, Sir, your obedient servants,

EDWARD J. PARRY,
R. STEWART.

St. Bartholomew's Hospital,
Feb. 25, 1834.

*** Though we have inserted this letter, we should be the last persons to advise that a student who felt himself compelled to complain of the arrangements of the hospital he attends, should make himself known. As well might a man with his eyes open thrust his naked hand into a nest of hornets.—ED. L.

CORRESPONDENTS.

We shall endeavour to give a report of the communications of Mr. Costello to the Westminster Medical Society, on the torsion of Arteries, next week.

Mr. Walker's article on the Iris and Palpebræ has reached us. His cases of purulent ophthalmia are in type, and will appear in the next LANCET. Their publication has been unavoidably delayed.

The letters of *Dr. Weatherill, Mr. Gawthorp, Mr. M'Coy, C,* and *Mr. Jones,* have been received.

Acousticus.—The report of the trial would not be interesting to our readers.

A Non-combatant.—We agree with our correspondent that the letter contained no reply to the more weighty charges, but this will be seen by every reader without the fact being additionally demonstrated.

An enthusiastic Admirer of the Lancet.—The writer was not Mr. H. of Walworth.

Mr. Lynn has resigned the office of surgeon to the Westminster Hospital, and has been unanimously elected by the Governors, to that of consulting-surgeon to the same institution. We shall notice some details connected with the proceeding next week.

The second letter on the district dispensaries shall be inserted.

BOOK RECEIVED.

The Principles of Diagnosis. By Marshall Hall, M.D. Second edition: two vols. in one. 1834. Published by Sherwood and Co.